

Markay Chemicals St. Albans, Kanawha County, West Virginia

SITE INSPECTION REASSESSMENT REPORT

TRIAD Project 01-06-0599

Submitted to:

West Virginia Department of Environmental Protection
Office of Environmental Remediation
601 57th Street
Charleston, West Virginia 25304

Submitted by:

TRIAD ENGINEERING, INC. St. Albans, West Virginia

November 2007

CIVIL . ENVIRONMENTAL AND GEOTECHNICAL ENGINEERING

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November 21, 2007

Mr. James Hargett Site Assessment Manager USEPA, Region 3 1650 Arch Street Philadelphia, PA 19103-2029

SUBJECT:

SITE INSPECTION REASSESSMENT REPORT

Markay Chemicals CERCLIS Site CERCLIS No. WVD054116645 TRIAD Project No. 01-06-0599

Dear Mr. Hargett,

TRIAD ENGINEERING, INC. is pleased to submit the *Site Inspection Reassessment Report* for the Markay Chemicals CERCLIS Site, prepared under Task 3 of the approved Work Plan.

If you have any questions or desire additional information, please feel free to contact us.

Sincerely,

TRIAD ENGINEERING, INC.

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ACRONYM GLOSSARY

ATSDR Agency for Toxic Substance and Disease Registry

bgs Below ground surface

CERCLA Comprehensive Environmental Response, Compensation, and

Liability Act of 1980

CERCLIS Comprehensive Environmental Response, Compensation, and

Liability Information System

CLP Contract Laboratory Program COC Contaminant of Concern

COPC Contaminant of Potential Concern
CRDL Contract Required Detection Limit

DQO Data Quality Objective
DWR Division of Water Resources
EP Tox Extraction Procedure Toxicity

FORMS II Lite Field Operations and Records Management System

FSP Field Sampling Plan
HASP Health and Safety Plan
HRS Hazard Ranking System
KAP KAP Technologies Inc.

MS/DUP Inorganic Matrix Spike/Matrix Duplicate
MS/MSD Organic Matrix Spike/Matrix Spike Duplicate

NFRAP No Further Remedial Action Planned

NPL National Priority List

NWI National Wetland Inventory

OER Office of Environmental Remediation

OWM Office of Waste Management

ppm part per million

QAPP Quality Assurance Project Plan

QC Quality Control

RAGS Risk-Assessment Guidance for Superfund

RAS Routine Analytical Services SAP Sampling and Analysis Plan

SARA Superfund Amendments and Reauthorization Act

SCS Soil Conservation Service SDG Sample Delivery Group

SENTIN Sentinel, Inc.

SIR Site Inspection Reassessment

SOW Statement of Work

SVOC Semi-volatile organic compound

TAL Target Analyte List

TAT Technical Assistance Team
TCL Target Compound List

TCLP Toxicity Characteristic Leaching Procedure

TDL Target distance limit

ACRONYM GLOSSARY, Continued

TRIAD ENGINEERING, INC.

USDA United States Department of Agriculture

USEPA United States Environmental Protection Agency

USFWS US Fish and Wildlife Service
USGS United States Geological Survey
UST Underground Storage Tank

VOC Underground Storage Tank
VOC Volatile Organic Compound

VRRDA West Virginia Voluntary Remediation and Redevelopment Act

WVDEP West Virginia Department of Environmental Protection
WVDHHR West Virginia Department of Health & Human Resources

WVDNR West Virginia Department of Natural Resources

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1.0 INTRODUCTION

TRIAD ENGINEERING, INC. (TRIAD) has prepared this *Site Inspection Reassessment* report (*SIR*) for the United States Environmental Protection Agency, Region III (USEPA) and the West Virginia Department of Environmental Protection (WVDEP), Office of Environmental Remediation (OER). This report has been prepared under authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1988 (SARA) under a Pre-Remedial Cooperative Agreement between the USEPA and the WVDEP.

The Markay Chemicals CERCLIS Site (the Site) has Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) site designation WVD054116645. The Site is not on the National Priorities List (NPL), and the current CERCLIS status is archived, with a "No Further Remedial Action Planned" (NFRAP) designation. The USEPA and WVDEP, OER determined a Site Inspection Reassessment (SIR) was warranted to assess potential risk associated with the Site and determined the Site should undergo further investigation under CERCLA. This *SIR* has been prepared under Task 3 of the approved Work Plan, WVDEP, OER Contract DEP13517.

Prior to preparing this *SIR* report, TRIAD performed various work tasks under the approved Work Plan relative to the Markay Chemicals CERCLIS Site, including preparing the following deliverables for the USEPA and WVDEP, OER:

- Conflict of Interest disclosure as per the requirements of 40 CFR Part 35.6550 (Subpart O), submitted December 28, 2006.
- Sampling and Analysis Plan (SAP), which included a Field Sampling Plan (FSP) and a Quality Assurance Project Plan (QAPP), submitted April 5, 2007.
- Health and Safety Plan (HASP), submitted April 5, 2007.
- Site Inspection Reassessment Field Sampling Activities Report at the conclusion of the field investigations, submitted August 3, 2007.

In addition to these deliverables, OER requested that TRIAD perform a preliminary screening-level risk assessment to assess potential risk associated with the Markay Chemicals CERCLIS Site. This preliminary screening-level assessment includes the following work tasks:

- Identifying contaminants of potential concern (COPCs) and then selecting contaminants of concern (COCs).
- Identifying areas of potential environmental concern, contaminant migration pathways, and potential human health and ecological receptors.
- Preparing this SIR report, which includes performing a preliminary Hazard Ranking System (HRS) evaluation using the USEPA Quickscore version 2.3 computer model, and providing recommendations.

2.0 SITE DESCRIPTION AND HISTORY

2.1 Site Location

The Markay Chemicals CERCLIS Site is located in a residential area at 302 MacCorkle Avenue in St. Albans, Kanawha County, West Virginia. Coordinates for the Site are 38° 23' 39.39" north latitude and 81° 50' 38.41" west longitude. The Site location is depicted on the St. Albans, W.Va. 7.5-minute United States Geological Survey (USGS) topographic quadrangle map depicted below on Figure 1, Site Location Map.

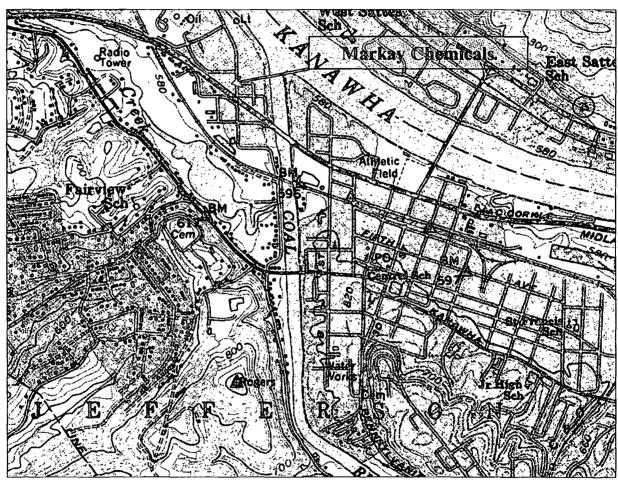


Figure 1, Site Location Map USGS, 1976

2.2 Site Description

The Site is relatively flat lying with a small slope to the northern side which leads to a drainage ditch on the adjacent residential property. Two connected structures are located at the Site, and the Site is surrounded by a chain link fence. In addition, the Site is located within the 100-year floodplain of the Kanawha River. Current Site and surrounding area features are depicted on the attached aerial photograph obtained from Google Earth ® as Figure 2, 2006 Aerial Photograph.

2.3 Ownership Information and Potentially Responsible Parties

The Markay Chemicals Site encompasses two tax parcels identified on the Kanawha County, Jefferson District 16, Tax Map 3M as parcels 137 and 138. Parcel 137 has been owned by the Shaheen family since 1970 and parcel 138 is currently owned by RoJo Properties, LLC, who purchased the property from Lillian Shaheen in November 2005. In addition, the Site has also been known as Kleen-Way Industries and Tornado Products, Inc. Potentially Responsible Parties include the following:

- Charles W. Shaheen (Markay Chemicals);
- Lee Roberts (Tornado Products, Inc.);
- Rojo Properties, LLC (Tornado Products, Inc.).

2.4 Operational Activities

Based on information available in the project file, the Markay Chemicals Site was operated by several businesses. The following is a summary of operational activities, in chronological order:

- Prior to 1970 a gas station operated at the Site. The gas station left behind two 5,000-gallon underground storage tanks (USTs).
- Markay Chemicals manufactured various industrial detergents, cleansers and degreasers. The exact date Markay Chemicals began operation is unknown; however, it was owned by the Shaheen family from 1970 and operated until sometime after September 1993. The Shaheen family owned the property until selling it to Rojo Properties, LLC in November 2005.
- Kleen-Way Industries manufactured industrial soaps, drilling foams and de-icers and merged with Markay Chemicals in March 1989.
- Tornado Products, Inc. currently operates at the Site and manufactures industrial cleaning products. Charles W. Shaheen leased the property to Lee Roberts, the owner of Tornado Products. It was sold by Lillian Shaheen in November 2005 to the current owner of Tornado Products, Rojo Properties, LLC.

2.5 Historical Site Investigations and Remedial Activities

The USEPA and WVDEP, OER project files indicate that site investigations and remedial activities have been performed at the Markay Chemicals Site since its discovery in September 1980. The following is a summary, in chronological order, of pertinent information obtained from the USEPA and WVDEP, OER project files:

September 16, 1980 – The West Virginia Division of Water Resources (DWR) performed a Site Inspection. The following information was noted:

- The Site was owned by Charles W. Shaheen.
- Markay Chemicals manufactured and sold drilling foam for the oil and gas industry.
- Labeled drums of the following were observed: diethylene glycol, ethylene glycol, alipal, 1, 1, trichloroethene, methyl-ethyl ketone (MEK), drilling foam, carbo wax and several drums with only "flammable" labels.



- A floor drain was located in the center of the warehouse and manufacturing area. The drain led to a low area outside the building which was referred to as the "pond" by company officials.
- The "pond" had reportedly been in use for approximately seven years.
- 25 to 35 drums were observed along the fence line of the property. Some drums were leaking; others had open tops; while several were in various stages of decomposition. Evidence of runoff from the drum storage area was observed.
- The facility "is polluting and needs major remedial work to correct present problems."

January 28, 1981 - The DWR performed a Site Inspection. The following information was noted:

- The area was fenced and drums were stacked as high as the fence. Many were rusted, dirty, and had placards stating the contents were flammable and corrosive.
- The owner indicated they "purchased raw materials from other companies and mixed them to produce product." They mainly mixed soaps, drilling foams, degreasers, and de-icers.
- The facility contained various sized tanks. If spillage occurred the chemicals were reportedly diluted with water and washed down a drain which discharged to the Coal River.
- The owner reported that the outside drums were empty and were not rinsed out onto the ground. The product created in the facility was placed into the raw materials drums.
- Water was standing in the low area to the left of the building. The area was covered with green plastic bottles and household trash.
- The stormwater ditch behind the property had a small area of ponded water (approximately 2 feet x 3 feet) at the left rear corner of the building.
- A concrete drain pipe protruded from the building and discharged into the ditch. No discharge was occurring at the time of inspection. However, a small area of opaque, greenish ponded water (approximately one foot in diameter) was present at the pipe outlet.
- Two areas, where surface discharge was seeping from drums were observed on the right side of the building. Evidence on the ground showed that at times the discharge had flowed into the ditch at the rear of the building. The largest discharge was a black liquid with an oily sheen.

March 17, 1981 – A Site Investigation and Trip Summary Report was prepared by the DWR. The following information was noted:

- The company mixed chemicals to produce cleaning compounds.
- Spilled materials and washings discharged into a drain in the center of the work area and drained outside onto the ground.
- Recommendations included general site cleanup, waste control, proper treatment,
 proper disposal, runoff control, and a workable spill contingency plan.
- Three water samples and two soil samples were collected from the Site and an



- additional sample was collected to perform a bioassay test.
- Laboratory analytical results indicated detected concentrations of carbon tetrachloride, trichloroethene, methylene chloride, chlorobenzene, chloroform, and 1,2-dichloropropane.
- The bioassay results, using a sample from the ditch into the "pond," were "very toxic" to *Daphnia pulex* at all dilutions over twenty-four hours.

April 6, 1981 – The West Virginia Department of Natural Resources (WVDNR) completed a Potential Hazardous Waste Site Identification following a site inspection. The following information was noted:

- The facility mixed and sold cleaning agents.
- The Site was an old service station located in a residential area along a major highway. A school was also located nearby.
- The Site contained drums stacked three high inside a chain-linked fence, many were in poor condition. Some were leaking onto the ground with no runoff control.
- The "pond" was not lined.
- Known wastes included 1, 1, 1-trichloroethane, MEK, methanol.

May 11, 1981 – The WVDNR completed a Potential Hazardous Waste Site Identification following a site inspection. The following information was noted:

- The Site was located in a populated residential and business area adjacent to a heavily used road.
- "The company used toxic and hazardous chemicals. In case of spill the chemicals were discharged into a drain and eventually soaked into the ground on the side of the building."

October 8, 1981 – Ecology And Environment, Inc. completed a Site Inspection. The following information was noted:

- The majority of on-site products were cleaning agents.
- There were no wastes transported from the Site.
- The result of the organic vapor analysis adjacent to the process tanks was 500 ppm above background.
- Samples were collected of waste, runoff, spill material, and soil. 1,2-Dichloropropane, Carbon tetrachloride, Trichloroethene, Chloroform, Dichloromethane, and Chlorobenzene were detected at the Site.
- Wastes were discharged from the process building through a floor drain onto the ground creating an unlined waste "pond." The size was approximately 10 yards x 15 yards.
- Strong odors were evident within the fence area. Odors were also evident from the street approximately 15 feet from the fenced area.
- There was extreme contamination of soil in the waste pond area and other areas of spillage.



- Spills were abundant, emanating from leaking containers in the process building and migrating from the Site.
- Parks and schools were located ¼ mile or greater from the Site.
- The drinking water supply was approximately 0.7 mile to the south and upgradient of the Site.

November 18, 1981 - WVDNR completed a Potential Hazardous Waste Site Tentative Disposition. The following information was noted:

- The company produced cleaning products and was located in a residential area. Analysis of water and soil samples taken from the site found high concentrations of methylene chloride, chloroform, and carbon tetrachloride.
- Several drums labeled as hazardous wastes were stacked on site and some showed signs of leaking.
- Enforcement was recommended.
- Spillage of hazardous materials was collected in a small unlined "pond" adjacent to the plant building. The extent of soil contamination was unknown.
- WVDNR recommended drums that contained waste and were leaking needed proper storage. Drums that contained ignitable wastes needed to be segregated.
 Contaminated soil and wastes should be removed from the "pond" and it be lined.

April 28, 1982 – The DNR issued Order No. 852 relating to the disposal of hazardous wastes at the facility. Based on the Order, Markay Chemicals was to comply with the following:

- Cease immediately upon receipt of the Order: 1) the release of hazardous wastes into the disposal pit and 2) the release of spillage of all hazardous wastes outside the facility perimeter.
- Collect and properly contain all hazardous wastes spilled on-site or off-site of the facility.
- Remove all hazardous wastes and hazardous waste residues from the disposal pit area and from the affected ditch.
- Submit to the Chief a plan detailing the methods to be used to comply with the Order. The plan was to include the methods for excavation, containment, and disposal of the contaminated soils and residues.

May 21, 1982 – Correspondence from Markay Chemicals Company to DNR in reference to Order No. 852. Markay Chemicals indicated the following:

- Containers were installed under each raw material container valve, thereby stopping leakage.
- All inadvertent spills were anticipated to be immediately picked up with absorbent, placed into a container, and shipped via certified hazardous waste disposal contractor to a certified hazardous waste disposal site.
- Spillage outside of the facility was corrected by limiting storage to only empty drums and finished products ready for shipment.



- The floor drain in the main building was sealed with a "thick layer of concrete."
- The "tile to waste pit" was cut and plugged with concrete.
- Spillage around tanks, drums, and mixing vats was cleaned with absorbent and put into containers.
- A dike was in the process of being installed around the inside perimeter of the main building to prevent a major spill from migrating out of the building.
- Hazardous wastes from the disposal pit drainage ditch, and the disposal pit would be closed.
- BCM Laboratories would sample the affected areas.
- The contaminated soil would be removed, placed into an approved container and shipped by a certified contractor to a certified hazardous waste disposal facility.
- The fence at the southwest corner of the building would be repaired to prevent unauthorized entry.
- Off-site spillage had ended and would be cleaned as described above.

July 1, 1982 – The BCM Laboratory Division prepared a Proposal for Soil Sampling and Analysis. The following information was noted:

- Samples would be collected from between the disposal pit and the MacCorkle Avenue embankment at the surface at depths of one, three, and five feet bgs. Samples would be collected from the low area at western corner of property boundary and from the ditch thealong property boundary at the rear of building at depths of one, two, and three feet bgs. Samples would be collected from between the eastern property boundary and Oliver Street at the surface and at depths of, one and two feet bgs.
- Samples would be analyzed for methylene chloride, ethylbenzene, toluene, 2chloronaphthalene, bis (2-ethyl hexyl) phthalate, phenol, toluene, and 2chloronaphthalene,

July 20, 1982 – Ecology And Environment, Inc prepared a Hazard Ranking System Site score for the Markay Chemicals Site. A Site score of 20.09 was calculated with the groundwater and air pathways being the pathways of concern driving the score. In addition, the following information was noted:

- The Groundwater pathway score was 3.28.
- The Surface Water pathway score was 0.00.
- The Air Route pathway score was 34.61.
- The Migration Hazard Mode score was 20.09.
- The Fire and Explosion pathway score was 0.00.
- The Direct Contact pathway score was 62.50.
- The waste quantity was estimated to include 4,230 drums and 800 cubic yards of sludge.

May 26, 1983 – The DWR reported by telephone to Mr. Erskine that the results from the samples collected from his yard adjacent to the Markay Chemicals facility were negative. Mr. Erskine reported that he believed that dead grass on his property was due to seepage from



the adjacent Markay Chemicals.

March 25, 1988 – The DNR completed a RCRA Compliance Evaluation Inspection. A notice of non-compliance was subsequently issued to Markay Chemicals on April 11, 1988 due to open containers of hazardous waste.

March 27, 1989 – Lillian Shaheen reported to the DNR that "Kleen-Way Industries had merged with Markay Chemicals Company and no longer operated under the name of Kleen-Way Industries."

April 3, 1991 – The DNR performed a Compliance Evaluation Inspection. The following information was noted:

- Numerous 55-gallon drums, several containing material, were located to the left of the main building. Mr. Shaheen reported that the full drums contained "soap stick" for use in oil/gas drilling.
- The gravel surface near the drums was stained and small puddles of dark liquid were present. A worker reported that he poured out about one gallon of the H3-1 Steam Compound from a drum. A sample of the product was determined to have a pH of approximately 12.1.
- Eight full 55-gallon drums of material were located adjacent to the fence on the right side of the facility. Mr. Shaheen stated that the drums contained dirty, waste solvent from the parts cleaning business and that the facility had discontinued the parts cleaning service and he needed to ship several drums of waste material off-site. The eight drums were rusted and not labeled.
- Several red 30-gallon and 16-gallon drums were also observed on the right side of the facility adjacent to the fence. All drums were half to two-thirds full and some were in poor condition. Mr. Shaheen stated that the drums contained waste solvent. Two of the 16-gallon drums were labeled as containing hazardous waste. A sample was taken from a 30-gallon waste drum and determined to have a flashpoint of 118.7 degrees Fahrenheit. This material was classified as a D001 characteristic hazardous waste.
- Several large capacity product storage tanks were stacked on cinder blocks without secondary containment inside the main facility building. The tanks are used to store flammable liquids such as methanol, toluene, and isopropyl alcohol. Numerous 55-gallon drums of product and chemical ingredients were also observed. Drums were stacked four or five high on one side, many in poor condition.

In addition, the following violations were reported:

- The facility stored drums of hazardous waste on-site without a permit.
- The facility created an imminent and substantial endangerment to public health, safety and the environment.
- The facility failed to label containers holding hazardous waste with an accumulation start date.
- The facility failed to label containers holding hazardous waste with the words



- "Hazardous Waste."
- The facility failed to make a hazardous waste determination of containers holding waste materials on site.
- The facility improperly prepared a hazardous waste manifest. The facility used the old company name, "Kleen-Way Industries" in the manifest document No. 00001.
- The facility failed to submit an exemption report to the Chief of Waste Management.

September 3, 1991 – The WVDNR prepared a Sampling Plan for the Site. The following information was noted:

- Markay Chemicals Company was a manufacturer of various industrial detergents, cleansers, and degreasers.
- The company, in the past, had provided parts cleaning services to area businesses.
 Markay Chemicals leased parts cleaning units to their customers, providing both pure solvents for the units and periodic cleaning of units to remove the spent solvent.
 Spent solvents were returned to Markay Chemicals for distillation on site.
- Concerns at the Site included the poor condition containers of unapproved waste containers and USTs holding undetermined wastes on site.
- The hazardous materials of concern were petroleum hydrocarbons and solvents (i.e. methanol, toluene, isopropyl alcohol, methylene chloride, 1,2-dichloroethane, benzene, chlorobenzene, ethylbenzene, and xylene), possible heavy metals, acids, bases, and herbicides.
- Liquid and/or sludge samples would be analyzed for Ignitability, Toxicity
 Characteristic Leaching Procedure (TCLP), benzene, 1,2-dichloroethane, Extraction
 Procedure Toxicity (EP Tox), percent solids, and lead.
- Ten grab samples would be obtained from a group of 17 hazardous waste 55-gallon drums using coliwasa or drum thiefs.
- Samples would be collected from the two USTs using bailers or coliwasas.
- Samples would also be collected from the two drums using coliwasas or drum thiefs.

September 9, 1992 – Consent Order HW-316-92 was issued to Markay Chemicals Corporation as a result of a Complaint Investigation and Sampling Inspection conducted on June 3, 1991 that noted the following:

- Markay Chemicals stored hazardous waste in two USTs on-site without a permit or interim status.
- Representatives of Markay Chemicals reported that a service station originally operated at the site and used the USTs for gasoline storage.
- Markay Chemicals had not registered the USTs with the UST section as product storage tanks. Markay Chemicals had not applied for a hazardous waste storage permit with the Hazardous Waste Permits Office.

The Order Required Markay Chemicals to comply with the following:

Remove the contents of the unpermitted hazardous waste storage tanks from those



- tanks and store the contents in containers which fully comply with all state and federal laws and regulations.
- Notify the Chief in writing at least five days prior to initiating removal of the tanks contents.
- ^a After removing the contents of the tanks and without rinsing the tanks, temporarily seal the tanks to prevent any future use of the tanks.
- Within 30 days of removal of the tanks contents, submit a proposed plan detailing the manner in which Markay Chemicals intends to address the USTs and potential site contamination.
- Within 15 days of receipt of the Plan, the Chief would approve or modify the Plan.
- Markay Chemicals was instructed to implement the Plan on or before April 1, 1993.

April 12 – 14, 1993 – A Trip Report was prepared by the Office of Waste Management (OWM) to document the UST remediation project underway at the facility. The following information was noted:

- During excavation activities, the soil was observed to be black due to apparent petroleum contamination.
- Visible holes were observed on the underside of both tanks.
- Three roll-off boxes of contaminated soil were collected on-site and a total of seven 55-gallon drums and one 30-gallon drum of "Hazardous Waste" were collected from the USTs. The waste was observed to be a "greenish-gray gelatinous sludge that was very odoriferous and pumpable liquids were associated with it."
- Six samples were collected, and analyzed for TCLP benzene, 1, 2-dichloroethane, lead, total methylene chloride and, BTEX.
- Toluene, ethylbenzene, and xylenes were detected.

May 3, 1993 – Correspondence from the WVDEP to Mr. Charles Shaheen. The following information was noted:

- The letter documented important points of a meeting on April 30, 1993, which was to clarify the management of three dumpsters of contaminated soil generated during the removal of two USTs.
- Soil in dumpster number 2 showed levels of 1, 2-dichloroethane and methylene chloride which warrants handling the soil as hazardous waste.
- Soil in dumpster 3 had levels of 1,2-dichloroethane (1.20 mg/kg) which is a possible hazardous waste. The levels were determined by testing the soil using EPA test methods for Toxicity Characteristic Leaching Procedure (TCLP).
- Analytical results from Dumpster Number 1 indicated that state regulations pertaining to LUSTs applied to this waste.
- ^o Clean soil was allowed to be used as a temporarily fill in the excavation pit; however, further site remediation was a possibility based on the TCLP test results.
- Installation of groundwater monitoring wells was required at the end of soil remediation activities.



March 19, 2003 – The DEP issued a Notice of Violation. The following information was noted:

- The facility failed to make a hazardous waste determination of waste materials stored in containers and tanks.
- The facility was advised to characterize waste materials and arrange for disposal with a licensed waste handling firm.

March 13, 2003 – The WVDEP completed a Compliance Evaluation Inspection. The following information was noted:

- At that time the current company name was Tornado Products, Inc, "Formulator of Industrial Cleaning Products."
- Lee Roberts was the owner of Tornado Products, Inc. He purchased the rights to produce and sell several industrial cleaning products that were offered by Markay Chemicals. Charles Shaheen still owned the building and property at that time.
- Products that were still manufactured and sold include Tornado, Supershine,
 Aluminum Brite, Paraffin Solvent, and Five-in-One.
- A physical inspection identified twelve 55-gallon drums in the western corner of the production area stacked three pallets high and a vertical storage tank marked "Sodium Cumene" held an unknown liquid. When questioned, Lee Roberts claimed that Charles Shaheen owned this item. Charles Shaheen acknowledged that several materials needed to be disposed and stated that he was working with Onyx and Ecofirst for assistance.

November 2006 - Marshall Miller & Associates, Inc. prepared an Executive Summary Report on behalf of the WVDEP, OER. The following information was noted:

- The Site was owned by RoJo Properties.
- Empty 55-gallon drums were located outside around the building.
- Waste "pond" area was paved over.
- No evidence of spillage, dumping, or distressed vegetation was observed.
- Prior to the chemical plant, the Site was used as a retail gasoline station with USTs.
- Impact from site activities were the result of raw material spillage, improper storage of recovered waste, and improper disposal of the waste products.
- Mr. Shaheen claimed that the only waste generated during the process was spillage of raw materials. The chemicals were rinsed to a floor drain and stored in a waste containment "pond" on the property.

3.0 ENVIRONMENTAL SETTING

3.1 Soils

Soil at the Site is classified as an Urban Land-Fluvaquents complex (Of) soil type by the United States Department of Agriculture (USDA), Soil Conservation Service (SCS). This

Opposite Contraction

soil type consists of nearly level, poorly drained, deep Fluvaquents on low terraces and flood plains. This complex consists of areas where more than 55% of the surface is urban land, 30% Fluvaquents, and 15% other soils. Permeability of the Fluvaquents is slow to moderate. Available water capacity is moderate to high. Runoff is slow.

3.2 Geology

The Site is underlain by the Quaternary-age alluvium consisting of unconsolidated gravel, sand, silt, and clay to depths of approximately 50 feet bgs. The site is underlain by the New River Formation of the Conemaugh Group from the Pennsylvanian period. The New River Formation consists of coal-bearing sandstones, siltstones, and shale. The formation contains Fire Creek, Beckley, and Sewell coal seams and Nuttall sandstone at the top. The Conemaugh Group consists of cyclic sequences of red and grey shale, siltstone, and sandstone, with limestones and coals. The Series extends from the base of the Pittsburgh coal to the top of the Upper Freeport coal.

3.3 Groundwater

Groundwater at the Site was encountered in relatively near-surface perched aquifers associated with discrete sand and gravel zones. During site assessment activities at the site the groundwater was encountered at depths between 25 and 35 feet bgs. The direction of groundwater flow would be expected to be to the north towards the Kanawha River. It would be expected that groundwater at the Site would be in direct hydraulic contact with the Kanawha River, which is located approximately 940 feet north of the Site. There are no known potable groundwater uses within the four-mile target distance limit (TDL) of the Site.

3.4 Surface Water

Surface water drainage from the Markay Chemicals Site would appear to flow to the north toward the Kanawha River, which is located approximately 940 feet to the north of the Site. The Kanawha River is used for recreational activities such as swimming, boating, and fishing. It should be noted that the Kanawha River is currently under a "Do not eat" fish advisory adjacent to and downgradient of the Markay Chemicals Site. However, it should be noted that people fish from the Kanawha River. The Coal River is also located approximately 850 feet east of the Site. The confluence of the Coal River and the Kanawha River is approximately 770 feet northeast of the Site. There are no known surface water intakes located on the Kanawha River within the 15 mile TDL downstream of the Site. A surface water intake is located on the Coal River approximately 0.7 miles upstream from the Site outside of the 15 mile TDL downstream of the Site. The Site is located within the 100-year floodplain of the Kanawha and Coal Rivers.

3.5 Demographics

Based on information obtained from the U.S. Census Bureau LandView® 5 version 1.0 Custom Census CD, the population for the area surrounding the Site is shown in the table on the following page:

REDACTED SECTION

3.6 Sensitive Environments

Based on information obtained from the U.S. Fish and Wildlife Service (USFWS), National Wetland Inventory (NWI) website, there are no wetlands present at the Site. However, there are Forested/Shrub, Riverine and Emergent wetland habitats associated with the adjacent Coal River. The wetlands are located upstream approximately 1,100 feet south of the Site. The wetlands do not receive surface water runoff from the Markay Chemicals Site. The NWI map is depicted below on Figure 3, Wetland Map.

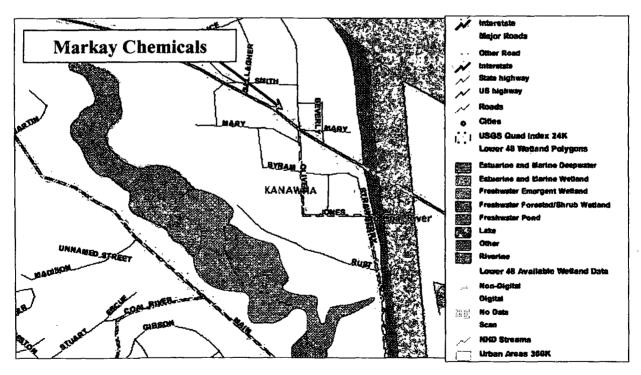


Figure 3, Wetland Map

3.7 Climate

Climate information for Kanawha County, West Virginia is available at the World Climate web-site (www.worldclimate.com). Average temperatures in the summer months range from

Oplons,

71.2 to 75.0 degrees Fahrenheit and range from 32.0 to 45.9 degrees Fahrenheit in the winter months. The average annual precipitation is 43 inches and the average monthly precipitation is 3.58 inches.

4.0 CURRENT SITE INVESTIGATIONS

TRIAD performed site investigation activities at the Markay Chemicals CERCLIS Site on June 12 and 13, 2007. During the sampling event, 12 surface soil, 6 subsurface soil, and 6 groundwater samples were collected. The locations of these samples are depicted on the attached Figure 4, Site Features and Sample Location Map.

4.1 Surface Soil Sampling

TRIAD collected 12 surface soil samples from the following locations:

- Eight surface soil samples including one field duplicate were collected from various areas of the Site and identified as SS-1 through SS-6, SS-10, and SS-11 (SS-11 is a duplicate of SS-10).
- Four surface soil samples were collected from an adjacent residence and identified as SS-7 through SS-9 and SS-13.

4.2 Subsurface Soil Sampling

TRIAD collected six subsurface soil samples including one field duplicate from various areas of the Site and identified as SB-1 through SB-6 (SB-6 is a duplicate of SB-2).

4.3 Groundwater Sampling

TRIAD collected six groundwater samples including one field duplicate from various areas of the Site and identified as GW-1 through GW-6 (GW-6 is a field duplicate of GW-5).

4.4 Quality Control Samples

TRIAD procured quality control (QC) samples during the investigation to assess sampling precision, effectiveness of decontamination procedures, sample temperature preservation, any evidence of sample cross-contamination, and matrix effect of each media. The following QC samples were obtained:

- Field duplicates
- Equipment or rinse blanks
- Temperature blanks
- Inorganic matrix spike and matrix duplicate (MS/DUP)
- Organic matrix spike/matrix spike duplicate (MS/MSD)

The QC samples met the data quality objectives (DQOs) of the site specific Sampling and Analysis Plan.

4.5 Analytical Procedures and Data Validation Process

Data obtained during SIR activities may be used for a range of purposes by USEPA and the

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WVDEP. Therefore, based on consultation with the USEPA Region III Site Assessment Officer, data collected were analyzed according to the specifications of the current USEPA CLP Statement of Work (SOW) for organic and inorganic analytes. TRIAD utilized the USEPA Field Operations and Records Management System II Lite (FORMS II Lite) computer program to prepare, track, and manage field sampling documentation.

The following is a summary of the analytical procedures and data validation processes:

- Case 36456, Sample Delivery Groups SDG C0001 and C0007 consisted of seven (7) aqueous samples analyzed for trace volatile and semivolatile compounds and eighteen (18) soil samples analyzed for volatile and semivolatile compounds. Three aqueous trip blanks and one aqueous sample analyzed for volatile compounds only. All samples were analyzed for volatiles and semivolatiles by KAP Technologies, Inc (KAP). The sample set included two rinsate blanks and three duplicate pairs. Samples were analyzed in accordance with Contract Laboratory Program (CLP) Statement of Work (SOW) SOM01.1 through the Routine Analytical Services program (RAS). Data were validated according to Region III Modification to the National Functional Guidelines for Organic Data Review, Level M2. The Organic Data Validation Report is included in the attached Appendix 1, Organic Data Validation Report.
- Case 36456, SDG MC0007 consisted of eighteen (18) soil samples analyzed for total metals and cyanide by Sentinel, Inc. (SENTIN). The sample set contained two field duplicate pairs. Samples were analyzed in accordance with CLP SOW ILM05.4 through the RAS program. Data were validated according to Region III Modification to the National Functional Guidelines for Inorganic Data Review, Level IM1. The Inorganic Data Validation Report is included in the attached Appendix 2, Inorganic Data Validation Report.
- Case 35456 SDG MC0027 consisted of three (3) aqueous samples analyzed for total metals and cyanide by Sentinel, Inc. (SENTIN). The sample set contained two rinsate blanks. Samples were analyzed in accordance with CLP SOW ILM05.4 through the RAS program. Data were validated according to Region III Modification to the National Functional Guidelines for Inorganic Data Review, Level IM1. The Inorganic Data Validation Report is included in the attached Appendix 2, Inorganic Data Validation Report.

4.6 Analytical Discussion

Based on the COPCs evaluated at the Site, TRIAD has reviewed the laboratory analytical data for the most recent SIR investigations to identify and select COCs for the Site. A COPC is defined as any individual compound or analyte that was analyzed under the most recent site assessment activities. COCs were selected based on criteria in the USEPA Risk Assessment Guidance for Superfund (RAGS), Volume 1, Human Health Evaluation Manual (Part A), Interim Final. To be selected as a COC, a compound or analyte had to be detected at least once at a concentration greater than the contract required detection limit (CRDL), and a

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concentration greater than the applicable *de minimis* value to which it is compared. In addition, inorganics had to be detected at a concentration greater than their published maximum background concentration for soil in West Virginia, as published in the *West Virginia VRRDA Guidance Manual (version 2.1)*.

The SIR laboratory analytical data were compared by media to the following USEPA and WVDEP environmental criteria and standards to select COCs:

Soil:

- USEPA Region III, Industrial Soil Risk Based Concentrations, April 2007.
- USEPA Region III, Residential Soil Risk Based Concentrations, April 2007.
- OSWER Directive: Revised Interim Soil Lead Guidance for CERCLA Sites, July 1994.
- West Virginia Voluntary Remediation and Redevelopment Act (VRRDA) Guidance Manual (Version 2.1) Table 2-3 Natural Background Levels of Inorganics in Soil in West Virginia and Surrounding Areas.

Ground Water:

- USEPA Region III Tap Water Risk Based Concentrations, April 2007.
- USEPA Primary Drinking Water Standards, Winter 2004.

Based on our evaluation, the occurrence and distribution of COPCs, selection of COCs, and the specific *de minimis* risk based value or criteria used for comparison purposes are summarized relative to environmental media in the attached Tables 1 through 4. The frequency of detection and comparison of these data to the applicable environmental *de minimis* RBC standards and criteria are presented in the following subsections. In addition, the CLP sample identifications are depicted on the attached Figure 5, *CLP Sample Location Map* and site and sample photographs are included in Appendix 3, *Site Photographs*.

4.6.1 On-Site Surface Soil Sample Results

The CLP Target Analyte List (TAL) inorganics (total metals), Target Compound List (TCL) volatile organic compounds (VOCs), and TCL semi-volatile organic compounds (SVOCs) were analyzed in eight on-Site surface soil samples and four surface soil samples collected from an adjacent residential property.

Arsenic was detected at concentrations greater than its respective benchmark value for industrial surface soil. All other inorganics, VOCs, and SVOCs were either not detected at concentrations greater than the Contract Required Detection Limit (CRDL) or were detected at concentrations less than their respective benchmark values. The occurrence, distribution and selection of COPCs, selection of COCs, and the specific *de minimis* risk based value or criteria used for comparison are summarized in Table 1A-1C, Occurrence, Distribution, and Selection of COC's – Surface Soil.



4.6.2 Adjacent Resident Surface Soil Sample Results

The CLP TAL inorganics (total metals), TCL VOCs, and TCL SVOCs were analyzed in eight on-Site surface soil samples and four surface soil samples collected from an adjacent residential property.

Arsenic, chromium, benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene were detected at concentrations greater than their respective benchmark values for residential surface soil. All other inorganics, VOCs, and SVOCs were either not detected at concentrations greater than the Contract Required Detection Limit (CRDL) or were detected at concentrations less than their respective benchmark values. The occurrence, distribution and selection of COPCs, selection of COCs, and the specific de minimis risk based value or criteria used for comparison are summarized in Table 2A-2C, Occurrence, Distribution, and Selection of COC's – Residential Surface Soil.

4.6.3 Subsurface Soil Sample Results

The CLP TAL Inorganics (total metals), TCL VOCs, and TCL SVOCs were analyzed in six subsurface soil samples collected from various areas throughout the Site.

All inorganics, VOCs and SVOCs were either not detected at concentrations greater than the CRDL, or were detected at concentrations less than their respective benchmark values. The occurrence, distribution, and selection of COPCs, selection of COCs, and the specific de minimis risk based value or criteria used for comparison are summarized in Tables 3A-3C, Occurrence, Distribution, and Selection of COC's – Subsurface Soil.

4.6.4 Groundwater Sample Results

The CLP TAL Inorganics (total metals) were analyzed in one groundwater sample, TCL VOCs were analyzed in six groundwater samples, and TCL SVOCs were analyzed in five groundwater samples all collected from various locations throughout the Site.

Total arsenic, total iron, total manganese, benzene, and 1,2-dichloroethane were detected at concentrations greater than their respective benchmark values. All other inorganics, VOCs and, SVOCs were either not detected at concentrations greater than the CRDL, or were detected at concentrations less than their respective benchmark values. The occurrence and distribution of COPCs, selection of COCs, and the specific de minimis risk based value or criteria used for comparison are summarized in Tables 4A-4C, Occurrence, Distribution, and Selection of COCs – Groundwater.

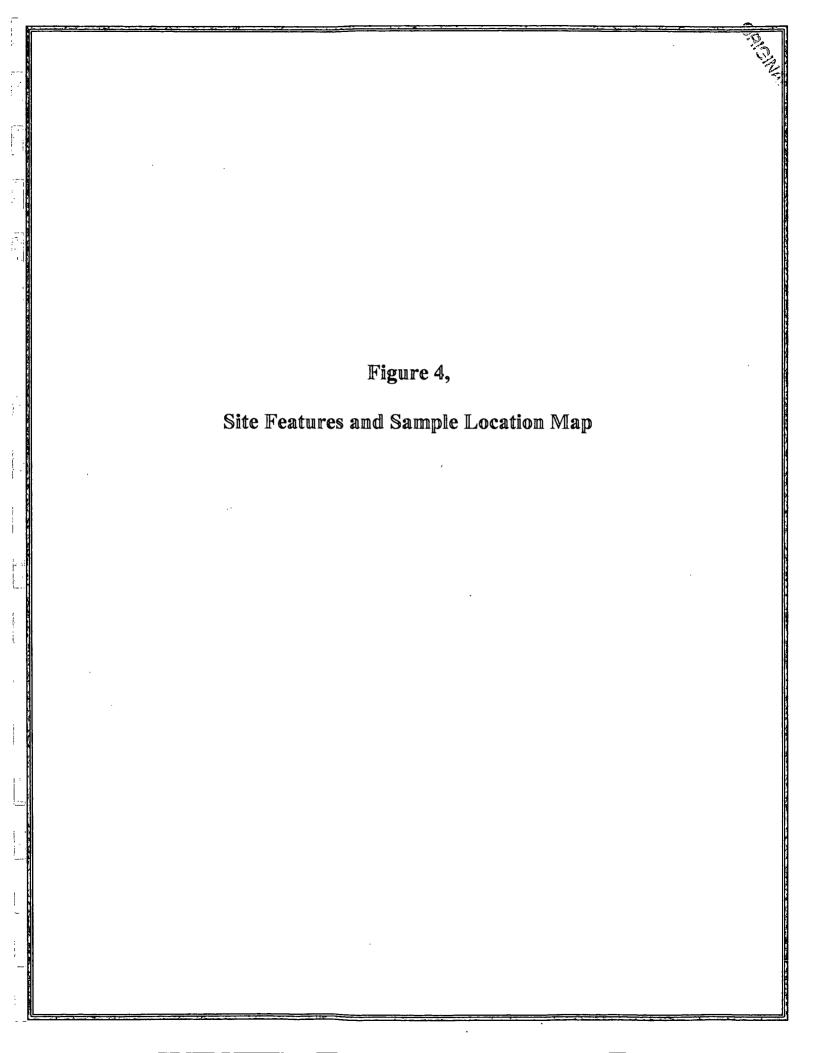
4.7 COC Selection

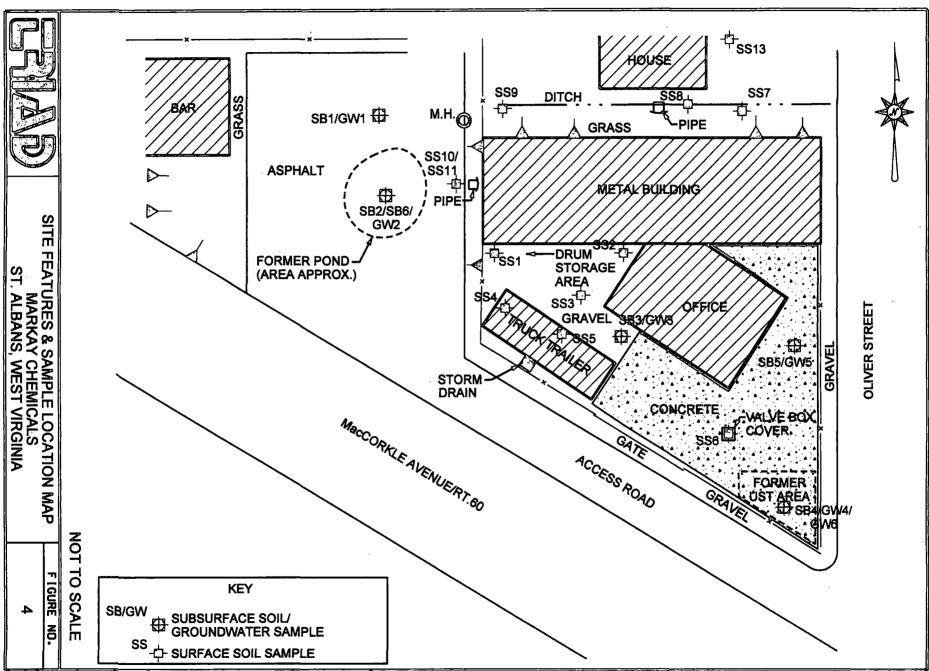
TRIAD selected COCs based on the occurrence, distribution, and frequency of detection for COPCs using the rationale summarized in USEPA Risk Assessment Guidelines for Superfund (RAGS) and Section 2.6 of the WV Voluntary Remediation and Redevelopment Act (VRRDA) Guidance Manual. To be selected as a COC, a compound or analyte had to be detected at least once at a concentration greater than the CRDL, and a concentration greater

Figure 2, 2006 Aerial Photograph



Figure 2, 2006 Aerial Photograph





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Figure 5,

CLP Sample Location Map

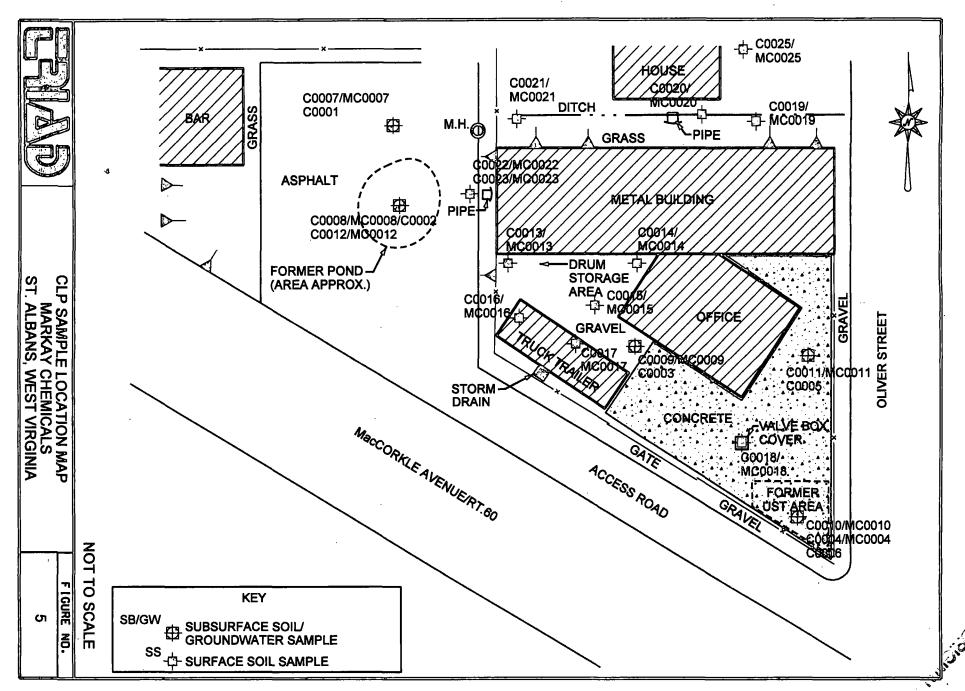


Table 1,

Occurrence, Distribution, and Selection of COCs, Surface Soil

Table 1A. Occurrence, Distribution and Selection of COC's Surface Soil (<2 feet bgs) Markay Chemicals CERCLIS Site St. Albans, Kanawha County, West Virginia

	Kata in the contract of the co	en mila	والمراجعة المراجعة	(Consume	Organ) and	13 13 547	i i i i i i i i i i i i i i i i i i i	man interior	Prox	hionax	Concer	4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	Acoffon (Lessed)	6.0	Budgewind	000785
corc	CROC	555- 0	22 -9	****	SSS- 0	223- 5	SS- 6	222-00	00 222-00) 00 222-000)	(D000008	S ampl u s	(1000) (1000)(1500)	(mg/Kg)	(ing/lsg)	gors.	antheorement) (pg//gm)	(Character)
					- *, 			:	Inorg	anics					-1		·
Aluminum	20	7,960	8,180	3,170	9,470	8,990	7,800	1 <u>0,</u> 800	9,860	8	8	3,170	10,800	1,000,000 1	NO	NA	YIES
Antimony	6.0	2.2	2.2	1.4	1.0	1.2	2.6	1.1	ND	7	8	ND	2.6	410 1	NO	NA	NO
Arsenic	1.0	13.4	19.5	4.0 B	7.7	5.4 B	10.6	7.6	10.5	8	8	7.6	19.5	13 3	YOUS.	NA	YTES
Barium	20	133	153	115	172	241	343	153	122	8	8	115	343	200,000 1	NO	NA	8000
Beryllium	0.5	0.85	0.88	0.35	1.3	1.0	1.0	1.3	1.2	8	8	0.35	1.3	2,000 1	NO	NA	YOURS
Cadmium	0.5	2.6	3.5	5.1	1.4	1.7	13.5	0.74	0.64	8	8	0.64	13.5	510 1	NO	NA	Y02S
Calcium	500	59,600	10,800	248,000	41,400	44,500	32,300	30,100	30,400	8	8	10,800	248,000	NV	NO	NA	7,082
Chromium	1.0	342	89.4	295	265	446	1,970	29.8	27.8	8	8	27.8	1970	3,100 1	NO	NA	3,0822
Cobalt	5.0	11.2	14.5	3.3	8.8	6.2	8.9	11.2	11.9	8	8	3.3	14.5	NV	NO	NA	8000
Copper	2.5	58.3	39.3	22.7	47.3	54.7	1,720	37.6	32.9	. 8	8	22.7	1,720	41,000 1	NO	NA	20022
Iron	10	46,400	36,800	18,700	25,600	25,700	52,800	19,700	19,700	8	8	18,700	52,800	720,000 1	NO	NA	Y088
Lead	1.0	397	489	84.8	440	374	957	26.9	28.0	8	8	26.9	957	1,000 2	NO	NA	8000
Magnesium	500	37,000	4,610	16,300	10,400	9,570	6,090	6,150	4,320	8	8	4,320	37,000	NV	NO	NA	YOUR
Manganese	1.5	673	643	243	758	756	833	466	602	8	8	243	833	20,000 1	NO	. NA	SALES.
Mercury	0.1	0.27	0.16	0.15	0.15	0.16	0.34	ND	0.050	7	8	ND	0.34	0.44 4	NO	NA	YDES
Nickel	4.0	25.9	29.9	8.7	19.4	19.8	24.5	27.2	27.8	8	8	8.7	29.9	20,000 1	NO	NA	SATES?
Potassium	500	1,070	1,400	828	961	1,140	1,100	2,330	2,310	8	8	828	2,330	NV	NO	NA	YOUS
Selenium	3.5	ND	1.2	ND	ND	ND	2.8	ND	ND	2	8	ND	2.8	5,100 1	NO	NA	NO
Silver	1.0	4.2	2.6	9.5	1.5	18.1	4.4	0.75	0.79	8	8	0.75	18.1	5,100 1	NO	NA	77025
Sodium	500	2,360 B	1,660 B	664 B	1,790 B	1,240 B	6,380 B	565 B	491 B	8	8	565	6,380	NV	NO	NA	YOUS
Thallium	2.5	2.3	3.0	ND	1.6	ND	3.9	1.2	1.3	6	8	ND	3.9	72 1	NO	NA	YES
Vanadium	5.0	20.3	21.6	8.2	14.4	10.2	16.7	19.3	18.5	8	8	8.2	21.6	1,000 1	NO	NA	VIES.
Zinc	6.0	912	666	189	704	389	2,780	130	113	8	8	113	2,780	310,000 1	NO	NA	YES
Cyanide	2.5	ND	0.27	0.26	0.55	0.44	1.0	0.42	0.53	7	8	ND	1.0	20,000 1	NO	NA	NO

NOTES:

- ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).
- NA Not Applicable or available.
- NV No Value Available for Compound.
- CRDL Contract Required Detection Limit.
 - 1 USEPA Region III Industrial Soil Risk Based Concentration, April 2007.
 - 2 Memorandum: OSWER Directive: Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities. United States Environmental Protection Agency, July 1994. Office of Solid Waste and Emergency Response. Directive 9355.4-12.
 - 3 Published natural background concentration for arsenic in soil in West Virginia ranges from 5.9 to 13.0 mg/Kg.
 - 4 Published natural background concentration for mercury in soil in West Virginia ranges from 0.02 to 0.44 mg/Kg.
 - BG Background sample is not available.
 - B Not detected substantially above the level reported in laboratory or field blanks.

Table 1B. Occurrence, Distribution and Selection of COC's Surface Soil (<2 feet bgs) Markay Chemicals CERCLIS Site St. Albans, Kanawha County, West Virginia

	e i te sig	era ri ar a		Change	monthoo dat	9/05/90)		4	a 41 / / .	mamak	Conson	Oreothoo	Acultum (Lence)	. ,	Cantegrand	000385	
TORC	CIRDÚ.	85 -0	22 -8	823-9	\$55-0	88 6	1833-4	822 -00	60,828-000 60,828-000	(Donásna	Simples	(mg/05gg)	00ms (mg/03gg)	(ng/lig)	ርወሮዩ	(mg/lsg)	Observed Referree
		+1					Volatile	Organic C	ompounds					and the second	. 1	. 	
Dichlorodifluoromethane	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA_	NO	NA	NO
Chloromethane	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Vinyl chloride	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA NA	NO	NA	NO
Bromomethane	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA NA	NO	NA	NO
Chloroethane	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	. NA	NO	NA	NO
Trichlorofluoromethane	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
1,1-Dichloroethene	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Acetone	10	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Carbon disulfide	5.0	ND	ND	ND	· ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO_	NA	NO
Methyl acetate	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Methylene chloride	5.0	ND	ND	4.6 B	ND	ND	ND	11 B	12 B	3	8	ND	12	380,000	NO NO	NA	902
trans-1,2-Dichloroethene	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Methyl tert-butyl ether	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
1,1-Dichloroethane	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
cis-1,2-Dichloroethene	·5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
2-Butanone	10	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Bromochloromethane	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Chloroform	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
1,1,1-Trichloroethane	5.0	ND	ND	_ ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Cyclohexane	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Carbon tetrachloride	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA NA	NO	NA	NO
Benzene	5.0	ND	ND	ND	· ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
1,2-Dichloroethane	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
1,4-Dioxane	100	ND	ND	ND	ND	· ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Trichloroethene	5.0	ND	ND	ND	ND	ND	20	ND	ND	1	8	ND	20	7,200	NO	NA	7085
Methylcyclohexane	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
1,2-Dichloropropane	5.0	. ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Bromodichloromethane	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
cis-1,3-Dichloropropene	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
4-Methyl-2-pentanone	10	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Toluene	5.0	ND	ND	ND	NĎ	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
trans-1,3-Dichloropropene	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
1,1,2-Trichloroethane	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Tetrachloroethene	5.0	ND	ND	ND	ND	ND	65	ND	ND	1	8	ND	65	5,300	NO NO	NA	7/08/3
2-Hexanone	10	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Dibromochloromethane	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
1,2-Dibromoethane	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Chlorobenzene	5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Ethylbenzene	5.0	ND	ND	ND	ND	ND	ND	ND		0	8	ND	ND	NA	NO	NA	-NO

Table 1B. Occurrence, Distribution and Selection of COC's Surface Soil (<2 feet bgs) Markay Chemicals CERCLIS Site St. Albans, Kanawha County, West Virginia

RDL.	888- 0	rene o	100							himana			Action Level		(Brothground)	000353
		22-5	\$22	223- 0	822	SZ -Ø	\$55-00	922-00 922-00 923-00	(Donesons	Samples	900m (mg/Clgg)	20.002 (1019/1591)	Concentration (reg(Se)	COC 8	Concentention (mg/Lgg)	(Discover)
	1 2					Volatile	Organic C	ompounds			1			.] .	, 1	
5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
5.0	ND	, ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	. NA	NO
5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
5.0	ND	ND	6.9	ND	ND	ND	ND	ND	1	8	ND	6.9	120,000	NO	NA	S/DES
5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
5.0	ND	ND	ND	ND	ND	ND	ND	. ND	0	8	ND	ND	NA	NO	NA	NO
5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
5.0	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
	5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	5.0 ND	5.0 ND ND	5.0 ND ND ND 5.0 ND ND ND	5.0 ND ND ND ND 5.0 ND ND ND ND ND 5.0 ND ND ND ND ND ND 5.0 ND ND	5.0 ND ND	5.0 ND ND	5.0 ND ND	5.0 ND ND	5.0 ND ND ND ND ND ND 0 5.0 ND ND<	5.0 ND ND ND ND ND ND ND 0 8 5.0 ND ND </td <td>5.0 ND ND</td> <td>5.0 ND ND</td> <td>5.0 ND NA 5.0 ND ND ND ND ND ND ND ND ND NA 5.0 ND ND ND ND ND ND ND ND NA 5.0 ND ND ND ND ND ND ND NA 5.0 ND ND ND ND ND ND ND ND NA 5.0 ND ND ND ND ND ND ND NA 5.0 ND ND ND ND ND ND ND NA 5.0 ND ND ND ND ND ND ND NA 5.0 ND NA</td> <td>5.0 ND NA NO 5.0 ND NA NO 5.0 ND ND ND ND ND ND ND ND NA NO 5.0 ND ND ND ND ND ND ND NA NO 5.0 ND ND ND ND ND ND ND NA NO 5.0 ND ND ND ND ND ND ND ND NA NO 5.0 ND ND ND ND ND ND ND NA NO 5.0 ND ND</td> <td> Solution Solution</td>	5.0 ND ND	5.0 ND ND	5.0 ND NA 5.0 ND ND ND ND ND ND ND ND ND NA 5.0 ND ND ND ND ND ND ND ND NA 5.0 ND ND ND ND ND ND ND NA 5.0 ND ND ND ND ND ND ND ND NA 5.0 ND ND ND ND ND ND ND NA 5.0 ND ND ND ND ND ND ND NA 5.0 ND ND ND ND ND ND ND NA 5.0 ND NA	5.0 ND NA NO 5.0 ND NA NO 5.0 ND ND ND ND ND ND ND ND NA NO 5.0 ND ND ND ND ND ND ND NA NO 5.0 ND ND ND ND ND ND ND NA NO 5.0 ND ND ND ND ND ND ND ND NA NO 5.0 ND ND ND ND ND ND ND NA NO 5.0 ND ND	Solution Solution

NOTES

ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).

NA Not Applicable or available.

CRDL Contract Required Detection Limit.

¹ USEPA Region III Industrial Soil Risk Based Concentration, April 2007.

BG Background sample is not available.

B Not detected substantially above the level reported in laboratory or field blanks.

Table 1C. Occurrence, Distribution and Selection of COC's Surface Soil (<2 feet bgs) Markay Chemicals CERCLIS Site St. Albans, Kanawha County, West Virginia

	(PIDIN)		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1,1510	Consument	pro (taling (QSER)	oğar)	- जि. के हैं।		Otoco	(linenala	Conssi	10000000 (20000	Antimo Lovel Consentantino		Budgmand	OURSS
Source.	CURIDL	\$\$\$ -0	. 822-8	227 1	222- 0	835 6	884	SS-00	60°525-000)	(Datesta	Simples	(ma _{(C} (ga)) vrim	(CDEX)(250)		ርመር የ	Consonionibis (next)	Chargood Reference?
11 15		1.					Base N	leutral Ac	d Compoun	ds			Carlin Artifa	(mes-west)		Articonstan	CYTATALITY
Benzaldehyde	170	ND	ND	ND	ND	ND	120	ŅD	ND	1	8	ND	120	100,000,000	NO	NA	NO
Phenol	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Bis(2-chloroethyl)ether	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
2-Chlorophenol	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
2-Methylphenol	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
2,2'-Oxybis(1-chloropropane)	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Acetophenone	170	ND	ND	ND	ND	ND	680	ND	ND	ı	8	ND	680	100,000,000	NO	NA	VFD83
4-Methylphenol	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA.	NO
N-Nitroso-di-n-propylamine	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Hexachloroethane	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA NA	NO	NA	NO
Nitrobenzene	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Isophorone	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
2-Nitrophenol	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
2,4-Dimethylphenol	170	ND	ND	ND	ND	ND	ND	ND	ND	0	- 8	ND	מא	NA	NO	NA	NO
Bis(2-chloroethoxy)methane	170	ND	ND	ND	ND	ND	ND	ND	ND	0	. 8	ND	ND	NA	NO	NA NA	NO
2,4-Dichlorophenol	170	ND	ND	ND	ND	ŅD	ND	ND	ND	0	- 8	ND	ND	NA	NO	NA	NO
Naphthalene	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
4-Chloroaniline	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Hexachlorobutadiene	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Caprolactam	170	ND	ND	ND	ND	ND	ND	ND	ND	0	-8	ND	ND	NA	NO	NA	NO
4-Chloro-3-methylphenol	170	ND	ND	ND	ND	ND	ND	ND	ND	0	. 8	ND	ND	NA	NO	NA	NO
2-Methylnaphthalene	170	65	ND	ND	ND	ND	ND	ND	ND	1	8	ND	65	4,100,000	NO	NA	NO
Hexachlorocyclopentadiene	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
2,4,6-Trichlorophenol	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA.	NO	NA	NO
2,4,5-Trichlorophenol	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
1,1'-Biphenyl	170	ND	ND	ND	ND	ND	ND	ND	ND	0	- 8	ND	ND	NA	NO	NA	NO
2-Chloronaphthalene	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
2-Nitroaniline	330	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Dimethylphthalate	170	ND	ND	ND	ND	ND	ND	ND	ND	0.	8	ND	ND	NA	NO	NA	NO
2,6-Dinitrotoluene	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Acenaphthylene	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
3-Nitroaniline	330	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Acenaphthene	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
2,4-Dinitrophenol	330	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
4-Nitrophenol	330	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Dibenzofuran	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
2,4-Dinitrotoluene	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Diethylphthalate	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Fluorene	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
4-Chlorophenyl-phenylether	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
4-Nitroaniline	330	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA NA	NO	NA	NO

Table 1C. Occurrence, Distribution and Selection of COC's Surface Soil (<2 feet bgs) Markay Chemicals CERCLIS Site St. Albans, Kanawha County, West Virginia

William Value of	restricted to the second of th			e. Salut. Su	(inneganitari)	ipm (m g/(Spr)	Zusa Sva	ilis vita W	ة الأراثية . أنا الأراثية .	Dioce	(meme)	Conso	oodboo	Acolfon (Loves)		Bushymund	OODS
conc	CRDL	881	\$\$.6	888	884	SS\$5	8860	553-0 0	60,522-000 60,522-000	Davas	Samples	Mbr (ne/034)	(DEAC(3E))	Consentention (ng/kgd)	COT 9	Consumention (realized)	Observed Referee?
H_ 6		1				· · · · ·	Base I	Veutral Ac	d Compour	nds					7, 100	(UB/US9)	USSEE LES
4.6-Dinitro-2-methylphenol	330	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
N-Nitrosodiphenylamine	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA:	NO
1,2,4,5-Tetrachlorobenzene	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
4-Bromophenyl-phenylether	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Hexachlorobenzene	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA NA	NO
Atrazine	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA NA	NO	NA	NO
Pentachlorophenol	330	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Phenanthrene	170	88	ND	ND	240	ND	ND	ND	ND	2	8	ND	240	310,000,000	NO	NA	S4082 3
Anthracene	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO_
Carbazole	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Di-n-butylphthalate	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Fluoranthene	170	150	99	ND	510	ND	ND	ND	ND	3	8	ND	510	41,000,000	NO	NA	V085
Pyrene	170	130	100	ND	400	ND	ND	ND	ND	3	8	ND	400	31,000,000	NO	. NA	SIES
Butylbenzylphthalate	170	ND	ND	ND	ND	250	ND	ND	ND	1	8	ND	250	200,000,000	NO	NA	VOES
3,3'-Dichlorobenzidine	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA	NO	NA	NO
Benzo(a)anthracene	170	74	ND	ND	270	ND	ND	ND	ND	2	8	ND	270	3,900	NO	NA	YURS
Chrysene	170	110	ND	ND	300	ND	ND	ND	ND	2	8	ND	300	390,000	NO	NA.	A082
Bis(2-ethylhexyl)phthalate	170	230	1,100	ND	180	690	480	ND	ND	5	8	ND	1100	200,000	NO	NA	7/085
Di-n-octylphthalate	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA.	NO	NA	NO
Benzo(b)fluoranthene	170	160	ND	ND	300	ND	ND	ND	ND	2	8	ND	300	3,900	NO	NA	SADES2
Benzo(k)fluoranthene	170	ND	ND	ND	170	ND	ND	ND	. ND	1	8	ND	170	39,000	NO	NA	8000
Вепло(а)рутепе	170	89	ND	ND	230	ND	ND	ND	ND	2	8	ND	230	390	NO	NA	SYDESS
Indeno(1,2,3-cd)pyrene	170	93	ND	ND	ND	ND	ND	ND	ND	1	8	ND	93	3,900	NO	NA	NO
Dibenzo(a,h)anthracene	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	. NA	NO	NA	NO
Benzo(g,h,i)perylene	170	95	ND	ND	ND	ND	ND	ND	ND	1	8	ND	95	31,000,000	NO	NA	NO
2,3,4,6-Tetrachlorophenol	170	ND	ND	ND	ND	ND	ND	ND	ND	0	8	ND	ND	NA NA	NO	NA	NO

NOTES:

ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).

NA Not Applicable or available.
CRDL Contract Required Detection Limit.

Phenanthrene criteria based on surrogate PAH Anthracene.

Benzo(g,h,i)perylene criteria based on surrogate PAH Pyrene.

1 USEPA Region III Industrial Soil Risk Based Concentration, April 2007.

BG Background sample is not available.

Table 2,

Occurrence, Distribution, and Selection of COCs, Residential Surface Soil

Table 2A. Occurrence, Distribution and Selection of COC's Residential Surface Soil (<2 feet bgs) Markay Chemicals CERCLIS Site St. Albans, Kanawha County, West Virginia

			Soneontrad	ion ong/Kg		Prog	nanay	Come	ODEOÓDECO)	Action Level	· · ·	Background	DODRAS .
COUC	CRDL	SS-7	85-8	SS- 0	SS-13	Dougets	Samples	1000 ((100) (100)	Concentration (mg/Kg)	COC 8	Conscionation (mg/Kg)	Observed Referee?
•							Inorgan	ics					
Aluminum	20	6,670	9,190	4,580	5,910	4	4	4580	9,190	78,000	NO	NA	
Antimony	6	ND	2.8	2,2	1.2	3	4	ND'	2.8	31 1	NO	NA	NO
Arsenic	1	23.6	10.5	8.2 B	7.7 B	4	4	7.7	23.6	0.43	YOUNG.	NA	YES
Barium	20	82.1	141	239	142	4	4	82.1	239	16,000	NO	NA	YOUS
Beryllium	0.5	1.2	0.93	0.38	0.74	4	4	0.38	1.20	160 ¹	NO	NA	YES.
Cadmium	0.5	0.31	1.5	0.87	1.4	4	4	0.31	0.87	39 1	NO	NA	Y CS
Calcium	500	26,100	22,900	8,010	65,200	4	4	8010	65,200	NV	NO	NA	SATES.
Chromium	1	59.7	39.7	242	24.3	4	4	24.3	242	230 1	YORS	NA	YOUNG.
Cobalt	5	7.2	11.6	3.8	6.8	4	4	3.8	11.6	NV	NO	NA	Y ES
Соррег	2.5	15.9	109	135	51.8	4	4	15.9	135	3,100	NO	NA	SYTEMS
Iron	10	11,800	51,800	20,900	16,800	4	4	11,800	51,800	55,000 ¹	NO	NA	VIES.
Lead	1	30.4	97.6	94.9	394	4	4	30.4	394	400 2	NO	NA	Y IBS
Magnesium	500	3,160	6,590	1,120	11,700	4	4	1,120	11,700	NV	NO	NA	YOUS
Manganese	1.5	282	425	162	512	4	4	162	512	1,600 ¹	NO	NA	YOUS.
Mercury	0.1	0.11	0.18	0.32	0.071	4	4	0.071	0.32	0.44_4	NO	NA	SAIDS.
Nickel	4	14.8	31.0	9.7	15.4	4	4	9.7	31	1,600	NO	NA.	YOUS
Potassium	500	1,530	1,560	2,460	872	4	4	872	2,460	NV	NO	NA	YES _
Selenium	3.5	ND	1.8	2.5	ND	2	4	ND	2.5	390 ¹	NO	NA	NO
Silver	1	ND	2.9	1.5	0.90	3	4	ND	2.9	390 ¹	NO	NA	Y IBS
Sodium	500	527 B	1,340 B	804 B	1740 B	4	4	174	1,340	NV_	NO	NA	YOUS
Thallium	2.5	ND	4.4	ND	ND	1	4	ND	4.4	5.5 1	NO	NA	YES
Vanadium	5	13.1	18.1	17.3	13.7	4	4	13.1	18.1	78 ¹	NO	NA	SIES
Zinc	6	69.3	366	152	276	4	4	69.3	366	23,000 1	NO	NA	NATES .
Cyanide	2.5	0.53	0.32	0.43	0.27	4	4	0.27	0.53	1,600 ¹	NO	NA	NO

- ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).
- NA Not Applicable or available.
- NV No Value available for compound.
- CRDL Contract Required Detection Limit.
 - 1 USEPA Region III Residential Soil Risk Based Concentration, April 2007.
 - 2 Memorandum: OSWER Directive: Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities.
 - United States Environmental Protection Agency, July 1994. Office of Solid Waste and Emergency Response. Directive 9355.4-12.

 3 Published natural background concentration for arsenic in soil in West Virginia ranges from 5.9 to 13.0 mg/Kg.
 - 4 Published natural background concentration for mercury in soil in West Virginia ranges from 0.02 to 0.44 mg/Kg.
 - BG Background sample is not available.
 - B Not detected substantially above the level reported in laboratory or field blanks.



Table 2B. Occurrence, Distribution and Selection of COC's Residential Surface Soil (<2 feet bgs) Markay Chemicals CERCLIS Site St. Albans, Kanawha County, West Virginia

I desire the second	- 140x	9	annomicul	(1921)\gm) (and	· ·	Prog	nanah	Concor	nongraphon	Acolina (Lovel)		(Background	000335
corc.	CROIL .	SS-7	858	85-0	22-13	(Doi:000)s	Samples	(119/139)	(1019/11/99) (1019/11/99)	Concentration (ng/15g)	8,000	Concentration (mg/l/sg)	Observed Release?
					Volat	ile Organi	с Сотрош						
Dichlorodifluoromethane	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA NA	NO
Chloromethane	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Vinyl chloride	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Bromomethane	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Chloroethane	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Trichlorofluoromethane	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
1,1-Dichloroethene	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Acetone	10	29 B	54 B	43 B	ND	3	4	ND	54	70,000,000	NO	NA	A032
Carbon disulfide	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Methyl acetate	5.0	6.2	ND	ND	ND	1	4	ND	6.2	78,000,000	NO	NA	8082
Methylene chloride	5.0	ND	ND	16 B	4.2 B	2	4	ND	16	85,000 ¹	NO	NA	YOURS.
trans-1,2-Dichloroethene	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Methyl tert-butyl ether	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
1,1-Dichloroethane	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
cis-1,2-Dichloroethene	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA NA	NO
2-Butanone	10	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Bromochloromethane	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Chloroform	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
1,1,1-Trichloroethane	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Cyclohexane	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO _.
Carbon tetrachloride	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Benzene	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
1,2-Dichloroethane	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
1,4-Dioxane	100	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Trichloroethene	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Methylcyclohexane	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	. NO	NA	NO
1,2-Dichloropropane	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Bromodichloromethane	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
cis-1,3-Dichloropropene	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
4-Methyl-2-pentanone	10	ND	ND	ND	ND	0	4.	ND	ND	NA	NO	NA	NO

Table 2B. Occurrence, Distribution and Selection of COC's
Residential Surface Soll (<2 feet bgs)
Markay Chemicals CERCLIS Site
St. Albans, Kanawha County, West Virginia

COPPC CHARD CH	garagangan a nasa		September 1	possipanj	fton (mgy/0\$g	0	Prog	hand	Conocu	00000	Agefron Level	1.37597	Brokground	00033
Toluene	CORC	CROL	* 53-7	832-8	889	222 =03	/:::== a	At .		(1019/05gg)	C 1 11-4-1- C 11-1- 30 V	g non	Consentration	Obsorved Release?
trans-1,3-Dichloropropene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NI 1,1,2-Trichloroethane 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO Tetrachloroethane 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO 2-Hexanone 10 ND ND ND ND ND ND ND ND NA NO NA NO </th <th></th> <th></th> <th></th> <th></th> <th></th> <th>Vola</th> <th>tile Organ</th> <th>c Compou</th> <th>nds:</th> <th></th> <th></th> <th>_</th> <th></th> <th>_</th>						Vola	tile Organ	c Compou	nds:			_		_
1.1,2-Tichloroethane	Toluene	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Tetrachloroethene	trans-1,3-Dichloropropene	5.0	ND	ND	_ND	ND	0	4	ND	ND	NA	NO	NA NA	NO
2-Hexanone 10 NID ND ND ND 0 4 ND ND NA NO NA NO 1,2-Dibromochloromethane 5.0 ND ND ND ND ND 0 4 ND ND NA NO NA NO 1,2-Dibromochloromethane 5.0 ND ND ND ND ND ND ND ND NA NO	1,1,2-Trichloroethane	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Dibromochloromethane 5.0 ND ND ND ND ND ND ND N	Tetrachloroethene	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
1,2-Dibromoethane 5.0 ND ND ND ND ND ND NA NO NA	2-Hexanone	10	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Chlorobenzene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO Ethylbenzene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO o-Xylene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO m.p-Xylene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO Styrene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO Styrene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO Bromoform 5.0 ND ND ND ND 0 4 ND ND </td <td>Dibromochloromethane</td> <td>5.0</td> <td>ND</td> <td>ND</td> <td>ND</td> <td>ND</td> <td>0</td> <td>4</td> <td>ND</td> <td>ND</td> <td>NA</td> <td>NO</td> <td>. NA</td> <td>NO</td>	Dibromochloromethane	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	. NA	NO
Ethylbenzene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO o-Xylene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO m,p-Xylene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO Styrene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO Bromoform 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO Isopropylbenzene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO 1,2,2-Tetrachloroethane 5.0 ND ND ND ND 0 4 ND <td>1,2-Dibromoethane</td> <td>5.0</td> <td>ND</td> <td>ND</td> <td>ND</td> <td>ND</td> <td>0</td> <td>4</td> <td>ND</td> <td>ND</td> <td>NA</td> <td>NO</td> <td>NA NA</td> <td>NO</td>	1,2-Dibromoethane	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA NA	NO
o-Xylene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO m,p-Xylene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO Styrene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO Bromoform 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO Isopropylbenzene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO Isopropylbenzene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO 1,1,2,2-Tetrachloroethane 5.0 ND ND ND ND ND ND <	Chlorobenzene	5.0	ND	ND	ND	ND	0	4	ND	ND	NA NA	NO	NA	NO
m,p-Xylene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO Styrene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO Bromoform 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO Isopropylbenzene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO Isopropylbenzene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO 1,1,2,2-Tetrachloroethane 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO 1,3-Dichlorobenzene 5.0 ND ND ND ND ND ND <td>Ethylbenzene</td> <td>5.0</td> <td>ND</td> <td>ND</td> <td>ND</td> <td>ND</td> <td>0</td> <td>4</td> <td>ND</td> <td>ND</td> <td>NA</td> <td>NO</td> <td>NA</td> <td>NO</td>	Ethylbenzene	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Styrene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO Bromoform 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO Isopropylbenzene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO 1,1,2,2-Tetrachloroethane 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO 1,3-Dichlorobenzene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO 1,4-Dichlorobenzene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO 1,2-Dichlorobenzene 5.0 ND ND ND ND ND	o-Xylene	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA.	NO
Bromoform	m,p-Xylene	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Isopropylbenzene	Styrene	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
1,1,2,2-Tetrachloroethane 5.0 ND ND <td< td=""><td>Bromoform</td><td>5.0</td><td>ND</td><td>ND</td><td>ND</td><td>ND</td><td>0</td><td>4</td><td>ND</td><td>ND</td><td>NA</td><td>NO</td><td>NA</td><td>NO</td></td<>	Bromoform	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
1,3-Dichlorobenzene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO 1,4-Dichlorobenzene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO 1,2-Dichlorobenzene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO 1,2-Dibromo-3-chloropropane 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO 1,2,4-Trichlorobenzene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO	Isopropylbenzene	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
1,4-Dichlorobenzene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO 1,2-Dichlorobenzene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO 1,2-Dibromo-3-chloropropane 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO 1,2,4-Trichlorobenzene 5.0 ND ND ND 0 4 ND ND NA NO NA NO	1,1,2,2-Tetrachloroethane	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
1,2-Dichlorobenzene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO 1,2-Dibromo-3-chloropropane 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO 1,2,4-Trichlorobenzene 5.0 ND ND ND 0 4 ND ND NA NO NA NO	1,3-Dichlorobenzene	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA NA	NO
1,2-Dibromo-3-chloropropane 5.0 ND ND ND 0 4 ND ND NA NO NA NO 1,2,4-Trichlorobenzene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO	1,4-Dichlorobenzene	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
1,2,4-Trichlorobenzene 5.0 ND ND ND ND 0 4 ND ND NA NO NA NO	1,2-Dichlorobenzene	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
	1,2-Dibromo-3-chloropropane	5.0	. ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
1,2,3-Trichlorobenzene 5.0 ND ND ND ND 0 4 ND NA NO NA NO	1,2,4-Trichlorobenzene	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA NA	NO
	1,2,3-Trichlorobenzene	5.0	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO

ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).

NA Not Applicable or available.

CRDL Contract Required Detection Limit.

¹ USEPA Region III Residential Soil Risk Based Concentration, April 2007.

BG Background sample is not available.

B Not detected substantially above the level reported in laboratory or field blanks.

Table 2C. Occurrence, Distribution and Selection of COC's
Residential Surface Soil (<2 feet bgs)
Markay Chemicals CERCLIS Site
St. Albans, Kanawha County, West Virginia

The second secon	n den de gybe Mag <u>yydd</u> Gyndd	化基金配谱 人名英格兰	Concompet	bon (mg/Kgg) 55 () () () () () () () () () (Pooq	Inanas	Concor		Action Level		Background	00035
conc	CROIL.	155 9	85 -6	\$\$5-0	SS-08	Dungas	Samples	(mg/Kg)	(10gg/DSgg)	Consultation (ug/Kg)	COC 3	Consumention (ng/15g)	Chrysted Release?
 				 	Base	Neutral A	Acid Compo	ounds		1	6 2 7 2		
Benzaldehyde	170	ND	ND	ND	84	1	4	ND	84	7,800,000	NO	NA	NO
Phenol	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Bis(2-chloroethyl)ether	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
2-Chlorophenol	170	ND	ND	ND	ND	0	4	ND	ND	NA.	NO	NA	NO
2-Methylphenol	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
2,2'-Oxybis(1-chloropropane)	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA NA	NO
Acetophenone	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA NA	NO
4-Methylphenol	170	ND	ND	ND	ND	0	4	ND	ND	NA NA	NO	NA.	NO
N-Nitroso-di-n-propylamine	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Hexachloroethane	170	ND	ND	ND	ND	0	4	ND	ND	NA NA	NO	NA	NO
Nitrobenzene	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Isophorone	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA.	NO
2-Nitrophenol	170	ND	ND	ND	ND	0	4	ND	ND	NA NA	NO	NA_	NO
2,4-Dimethylphenol	170	ND	ND	ND	ND	0	4	ND	ND	NA NA	NO	NA	NO
Bis(2-chloroethoxy)methane	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA NA	NO
2,4-Dichlorophenol	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NANA	NO
Naphthalene	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	` NA	NO
4-Chloroaniline	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA.	NO
Hexachlorobutadiene	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA NA	NO
Caprolactam	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NANA	NO
4-Chloro-3-methylphenol	170	ND	ND	ŇD	ND	0	4	ND	ND	NA	NO	NA	NO
2-Methylnaphthalene	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	. NA	NO
Hexachlorocyclopentadiene	170	ND	ND	ND	ND	0	4	ND	ND	NA NA	NO	NA	NO
2,4,6-Trichlorophenol	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA NA	NO
2,4,5-Trichlorophenol	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO

Table 2C. Occurrence, Distribution and Selection of COC's
Residential Surface Soil (<2 feet bgs)
Markay Chemicals CERCLIS Site
St. Albans, Kanawha County, West Virginia

CORC	CIRIDI.	SS-7 *-	20000000000000000000000000000000000000	0-222 (0-222) SS-13	gia e la C	Camples	Concor Min (ug/Kg)	iverificm Niesz (rug/ilses)	Action Level Concentration (ng/1821)	COC 3	Background Concentration (ng/Kg)	OURS Ourserved Redense?
					Base	Neutral A	cid Comp		V-02			. 1 1	
1,1'-Biphenyl	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
2-Chloronaphthalene	170	ND	NĐ	ND	ND	0	4	ND	ND	NA	NO	NA	NO
2-Nitroaniline	330	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Dimethylphthalate	170	ND	ND	ND	780	1	4	ND	` 780	NV	NO	NA	VES.
2,6-Dinitrotoluene	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Acenaphthylene	170	ND	ND	ND	87	1	4	ND	87	4,700,000 1	NO NO	NA	YUSS
3-Nitroaniline	330	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Acenaphthene	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
2,4-Dinitrophenol	330	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
4-Nitrophenol	330	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Dibenzofuran	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
2,4-Dinitrotoluene	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Diethylphthalate	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Fluorene	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
4-Chlorophenyl-phenylether	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
4-Nitroaniline	330	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
4,6-Dinitro-2-methylphenol	330	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
N-Nitrosodiphenylamine	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
1,2,4,5-Tetrachlorobenzene	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
4-Bromophenyl-phenylether	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Hexachlorobenzene	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Atrazine	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Pentachlorophenol	330	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Phenanthrene	170	ND	ND	ND	350	1	4	ND	350	23,000,000 1	NO	NA	Y025
Anthracene	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Carbazole	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Di-n-butylphthalate	170	ND	ND	1,000	ND	1	4	ND	1,000	7,800,000 1	NO	NA	VIES.

Table 2C. Occurrence, Distribution and Selection of COC's
Residential Surface Soil (<2 feet bgs)
Markay Chemicals CERCLIS Site
St. Albans, Kanawha County, West Virginia

		(Congrantival	from (mg/X)sg	D	Proop	traticals	Conson		Acolom (Level		Buckground	0003
CORC	CIRIDIL	SS -7	888 8	SS-0	253-13	Donoons	Samples	(1002/03gg)	\$00x3 (100g/12\$gg)	Concentration (ng/Kg)	COC 8	Conscentration (ng/lsg)	(Chargevoor) (Redenace?
		-			Base	Neutral A	cid Compo	unds				1	
Fluoranthene	170	ND	290	ND	1,100	2	4	ND	1,100	3,100,000 1	NO	NA	YOSS
Pyrene	170	_ND	200	ND	710	2	4	ND	710	2,300,000 1	NO	NA	YES.
Butylbenzylphthalate	170	ND	150	ND	450	2	4	ND	450	16,000,000	NO	NA	YUSS
3,3'-Dichlorobenzidine	170	ND	ND'	ND	ND	0	4	ND	ND	NA	NO	NA	NO
Benzo(a)anthracene	170	ND	ND	ND	430	1	4	ND	430	220 1	YOS	NA	YUES
Chrysene	170	ND	170	ND	550	2	4	ND	550	22,000 1	NO	NA	YTES
Bis(2-ethylhexyl)phthalate	170	ND	4,100	1,100	. 630	3	4	ND	4,100	46,000 ¹	NO	NA	Y083
Di-n-octylphthalate	170	ND	ND	ND	84	1	4	ND	84	NV	NO	NA	NO
Benzo(b)fluoranthene	170	ND	ND	ND	690	1	4	ND	690	220 1	YOES	NA	YUES
Benzo(k)fluoranthene	170	ND	ND	ND	330	1	4	ND	330	2,200 1	NO	NA	V0835
Benzo(a)pyrene	170	ND	ND	ND	460	1	4	ND	460	22 1	82082	NA	YIBS
Indeno(1,2,3-cd)pyrene	170	ND	ND	ND	380	l	4	ND	380	220 1	2002	NA	YOUS
Dibenzo(a,h)anthracene	. 170	ND	ND	ND	130	1	4	ND	130	22 1	A082	NA	YOUNG.
Benzo(g,h,i)perylene	170	ND	ND	ND	190	1	4	ND	190	2,300,000 1	NO	NA	V/UBSS
2,3,4,6-Tetrachlorophenol	170	ND	ND	ND	ND	0	4	ND	ND	NA	NO	NA	NO

NOTES:

ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).

NA Not Applicable or available.

NV No Value Available for Compound.

CRDL Contract Required Detection Limit.

Acenapthylene criteria based on surrogate PAH Acenaphthene.

Phenanthrene criteria based on surrogate PAH Anthracene.

Benzo(g,h,i)perylene based on surrogate PAH Pyrene.

1 USEPA Region III Residential Soil Risk Based Concentration, April 2007.

BG Background sample is not available.

Occurrence, Distribution, and Selection of COCs, Subsurface Soil

Table 3A. Occurrence, Distribution and Selection of COC's Subsurface Soil (>2 feet bgs) Markay Chemicals CERCLIS Site St. Albans, Kanawha County, West Virginia

core	(TIDL	20- 03	* 20.5	1986 - 1 14	2218=0 jum (mg/13gg	SID-5	SB-0 (PD of SB-2)		S umbles Induel	Comeon Liftin (mg/Kg)	ome/Kg)	Action Level Concentration (mg/18g)	coc s	Background Concentration (mg/Kg)	Observed Release
		•	.4					Inorgani	cs					1	
Aluminum	20	7,550	7,000	6,410	8,690	8,140	7,780	6	6	6,410	8,690	1,000,000	NO	NA	YOESS
Antimony	6	ND	1.1	1.1	1.2	1.1	ND	4	6	ND	1.2	. 410 ¹	NO	NA	NO
Arsenic	1	5.1 B	4.0 B	5.6 B	6.1 B	5.8 B	5.7 B	6	6	4	6.1	13 3	NO	NA	SYDESS
Barium	20	83.1	69.8	64.7	105	85:8	77.0	6	6	64.7	105	200,000 1	NO	N <u>A</u>	STIPS.
Beryllium	0.5	1.0	0.88	1.0	1.1	0.98	1.0	6	6	0.88	1.1	2,000	NO	NA	2207
Cadmium	0.5	ND	ND	ND	0.22	ND	ND	1	6	ND	0.22	510 1	NO	NA	NO
Calcium	500	379	1,910	314	512	703	5,510	6	6	314	5510	NV	NO	. NA	A.0322
Chromium	1	11.3	11.0	12.1	14.4	11.6	12.3	6	6	11	14.4	3,100 1	NO	NA	A.1522
Cobalt	5	9.6	10.3	10.9	10.3	13.1	9.4	6	6	9.4	13.1	NV	NO	NA	TY TESS
Copper	2.5	18.7	18.7	18.4	19.2	18.2	21.2	6	6	18.2	21.2	41,000 1	NO	NA	7,052
Iron	10	25,800	20,900	25,300	27,300	26,100	25,800	6	6	20,900	27,300	720,000 1	NO	NA	VOES
Lead	1	11.3	. 10.5	12.0	10.8	13.1	11.7	6	6	10.5	13.1	1,000 ²	NO	NA	SATES.
Magnesium	500	2,360	2,450	1,900	2,470	2,510	3,000	6	6	1900	3000	NV	NO	NA	77085
Manganese	1.5	176	215	443	505	647	192	6	6	176	647	20,000 1	NO	NA	ADEZ
Мегсигу	0.1	0.069	0.070	ND	0.019	0.019	0.032	5	6	ND	0.07	0.44 4	NO	NA	NO
Nickel	4	15.9	15.0	14.0	16.7	17.2	14.5	6	6	14	17.2	20,000	NO	NA	A052
Potassium	500	831	840	787	996	860	845	6	6	787	996	NV ²	NO	NA	A182
Selenium	3.5	1.1	ND	1.1	ND	ND	ND	2	6	ND	1.1	5,100 1	NO	NA	NO
Silver	1	1.3	1.0	1.2	1.4	1.3	1.2	6	6	1	1.4	5,100 1	NO	NA	9088
Sodium	500	437 B	408 B	425 B	473 B	482 B	454 B	6	6	408	482	NV	NO	NA	NO
Thallium	2.5	2.4	1.5	2.0	2.5	2.2	2.1	6	6	1.5	2.5	72 1	NO	NA	A.052
Vanadium_	5	16.9	15.3	16.1	18.2	17.1	17.2	6	6	15.3	18.2	1,000	NO	NA	YOUS ,
Zinc	6	63.4	58.9	53.1	67.6	68.3	60.8	6	6	53.1	68.3	310,000 1	NO	NA	74052
Cyanide	2.5	5.5	ND	ND	ND	1.9	ND	2	6	ND	5.5	20,000 1	NO	NA	A.OEZ

- ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).
- NA Not Applicable or available.
- NV No Value Availbable for Compound.
- CRDL Contract Required Detection Limit.
 - 1 USEPA Region III Industrial Soil Risk Based Concentration, April 2007.
 - 2 Memorandum: OSWER Directive: Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities. United States Environmental Protection Agency, July 1994. Office of Solid Waste and Emergency Response. Directive 9355.4-12.
 - 3 Published natural background concentration for arsenic in soil in West Virginia ranges from 5.9 to 13.0 mg/Kg.
 - 4 Published natural background concentration for mercury in soil in West Virginia ranges from 0.02 to 0.44 mg/Kg.
 - BG Background sample is not available.
 - B Not detected substantially above the level reported in laboratory or fild blanks.

Table 3B. Occurrence, Distribution and Selection of COC's Subsurface Soil (>2 feet bgs) Markay Chemicals CERCLIS Site St. Albans, Kanawha County, West Virginia

A PAR SE TRE SE ENTREMEN	e Parish w	entide v	2.25	Consumm	pur (trific)(zph)		. د. واد ماسرون	Phon	пеней		ntreation .	Acollem (Level)		(Brokenand)	. IOOS
CORC	CIRDI	S050. *	203-5	20-0	SD-0	12 m - 1 M - 1	01210-80 01210-80	Duputs	Samples	(rig/ISp)	(1019/03gg) (1019/03gg)	(ng/199)	COL 9	Contolletton (ng/lig)	(Discovice)
	,					Volatile	Organic Co	mpounds					1		· · · · · · · · · · · · · · · · · · ·
Dichlorodifluoromethane	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Chloromethane	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	, NA	NO
Vinyl chloride	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	Ю
Bromomethane	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Chloroethane	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Trichlorofluoromethane	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	· NO	NA	NO
1,1-Dichloroethene	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	, ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Acetone	10	ND	ND	ND	ND	ND	19 B	1	6	ND	ND	920,000,000	1 NO	NA	SADER2
Carbon disulfide	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Methyl acetate	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Methylene chloride	5.0	ND	3.7 B	ND	ND	ND	ND	1	6	ND	ND	380,000	1 NO	NA	04(2)22
trans-1,2-Dichloroethene	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Methyl tert-butyl ether	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,1-Dichloroethane	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA NA	NO
cis-1,2-Dichloroethene	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
2-Butanone	10	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Bromochloromethane	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA NA	NO	NA	NO
Chloroform	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,1,1-Trichloroethane	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Cyclohexane	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Carbon tetrachloride	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Benzene	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA NA	NO	NA	NO
1,2-Dichloroethane	5.0	ND	ND	ND	6.1	ND	ND	1	6	ND	6.1	31,000	¹ NO	NA	VIES
1,4-Dioxane	100	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Trichloroethene	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Methylcyclohexane	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA NA	NO
1,2-Dichloropropane	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA NA	NO	NA.	NO
Bromodichloromethane	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA NA	NO	NA	NO
cis-1,3-Dichloropropene	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA NA	NO	NA	NO
4-Methyl-2-pentanone	10	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Toluene	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
trans-1,3-Dichloropropene	5.0	ND	/ ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,1,2-Trichloroethane	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Tetrachloroethene	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
2-Hexanone	10	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Dibromochloromethane	5.0	ND	ND	· ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,2-Dibromoethane	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Chlorobenzene	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Ethylbenzene	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA.	NO	NA	NO

Table 3B. Occurrence, Distribution and Selection of COC's Subsurface Soil (>2 feet bgs) Markay Chemicals CERCLIS Site St. Albans, Kanawha County, West Virginia

4.50	give .		1	Consument	pon (mia/j),(fail)		in later i		папах	Conson	00300000	Acother Level		Garlepound	00038
coulc	C CRODO	SID-0	201-5	SID-8	SID-0	203 6	COLUMN TOO	(Dollouis	Samples	00000 (1019/0399)	2002 (1920)	Concentraction (DECOED)	የመመን	(Tensentiation (ng/13g)	Observed Release?
			7.	i.	1 . 2	Volatil	e Organic Co	mpounds	₹.				i.	,	
o-Xylene	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
m,p-Xylene	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Styrene	5.0	ND	ND	DN	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Bromoform	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Isopropylbenzene	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,1,2,2-Tetrachloroethane	5.0	ND	ND	. ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,3-Dichlorobenzene	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	ŅО	NA	NO
1,4-Dichlorobenzene	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,2-Dichlorobenzene	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,2-Dibromo-3-chloropropane	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,2,4-Trichlorobenzene	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,2,3-Trichlorobenzene	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO

ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).

NA Not Applicable or available.

CRDL Contract Required Detection Limit.

¹ USEPA Region III Industrial Soil Risk Based Concentration, April 2007.

B Not detected substantially above the level reported in laboratory or field blanks.

BG Background sample is not available.

Table 3C. Occurrence, Distribution and Selection of COC's Subsurface Soil (>2 feet bgs) Markay Chemicals CERCLIS Site St. Albans, Kanawha County, West Virginia

		•	. ,	Conscanoni	om (orge/CSgs)			Phaq	ing magy	Conssi		Aggion (Loya)		Bushground	00RS
CORC	CHIDL	20 -0	20-8	203-8)	SB-0	203-8	04203-50 203-0040	Denous	Salgrant	00000 (1002/1290)	20002 (10921)(100)	(Tungligg)	COCS	Consconnation (4921/291)	Chronell Release?
						Semi-Vola	tile Organic	Compoun	ds		7 - D			a la	
Benzaldehyde	170	ND	ND	ND	ND	ND	87	i	6	ND	87	100,000,000	NO	NA	ŅO
Phenol	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	· NA	NO
Bis(2-chloroethyl)ether	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
2-Chlorophenol	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
2-Methylphenol	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
2,2'-Oxybis(1-chloropropane)	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Acetophenone	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
4-Methylphenol	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA NA	NO
N-Nitroso-di-n-propylamine	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Hexachloroethane	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Nitrobenzene	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA NA	NO	NA	NO
Isophorone	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
2-Nitrophenol	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
2,4-Dimethylphenol	170	ND	ND	ND	ND	ND	ND	0	6	ND	NĎ	NA	NO	NA	NO
Bis(2-chloroethoxy)methane	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
2,4-Dichlorophenol	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Naphthalene	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA NA	NO
4-Chloroaniline	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Hexachlorobutadiene	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA NA	NO	NA	NO
Caprolactam	170	ND	ND.	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
4-Chloro-3-methylphenol	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
2-Methylnaphthalene	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA.	NO
Hexachlorocyclopentadiene	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
2,4,6-Trichlorophenol	170	ND	N <u>D</u>	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
2,4,5-Trichlorophenol	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,1'-Biphenyl	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
2-Chloronaphthalene	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
2-Nitroaniline	330	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Dimethylphthalate	170	ND	ND	ND	ND	ND	ND	0	6	ND	. ND	NA NA	NO	NA NA	NO
2,6-Dinitrotoluene	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA NA	NO	NA	NO
Acenaphthylene	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
3-Nitroaniline	330	DN	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Acenaphthene	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA NA	NO	NA	NO
2,4-Dinitrophenol	330	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
4-Nitrophenol	330	ND	ND	ND	ND	·ND	ND	0	6	ND	ND	NA	NO	NA	NO
Dibenzofuran	170	ND	ND	ND	ND	ND	ND:	0	6	ND	ND	NA	NO	NA	NO
2,4-Dinitrotoluene	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA NA	NO
Diethylphthalate	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Fluorene	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
4-Chlorophenyl-phenylether	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA NA	NO

Table 3C. Occurrence, Distribution and Selection of COC's Subsurface Soil (>2 feet bgs) Markay Chemicals CERCLIS Site St. Albans, Kanawha County, West Virginia

				Consument	00 (10 (10 (10 (10 (10 (10 (10 (10 (10 (Carrolla carrier	Poor	nangy	Comeon		Acotton (Level)	- ANEXTO A	Brokground	00038
TOP	COOP	800-0	SID+8	SID-8	83B≠0	SID-6	01,210-50 210-0 (14.10)	Datasas	Samples	(1002/15(m))	\$2002 (mg/03gg)	Consumention (pg/Cigg)	COT. 8	(Topography)	Olistrodi Releist®
	. •					Semi-Vola	tile Organi	Compoun	ds						
4-Nitroaniline	330	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
4,6-Dinitro-2-methylphenol	330	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA NA	NO
N-Nitrosodiphenylamine	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,2,4,5-Tetrachlorobenzene	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
4-Bromophenyl-phenylether	170	ND	ND	. ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Hexachlorobenzene	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Atrazine	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Pentachlorophenol	330	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Phenanthrene	170	ND	ND	ND	ND	ND	ND	0	6	ND.	ND	NA	NO	NA	NO
Anthracene	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Carbazole	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Di-n-butylphthalate	170	ND	ND	ND	ND	· ND	ND	0	6	ND	ND	NA	NO	NA	NO
Fluoranthene	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Ругепе	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Butylbenzylphthalate	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
3,3'-Dichlorobenzidine	170	ND	. ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Benzo(a)anthracene	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA NA	NO
Chrysene	170	88	ND	ND	ND	ND	ND	t	6	ND	88	390,000 ¹	NO	NA	NO
Bis(2-ethylhexyl)phthalate	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Di-n-octylphthalate	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Benzo(b)fluoranthene	170	110	ND	ND	ND	ND	ND	1	6	ND	110	3,900 1	NO	NA	NO
Benzo(k)fluoranthene	170	ND	ND	ND	ND	ND	ND	0	6	ND	. ND	NA	NO	NA	NO
Benzo(a)pyrene	170	96	ND	ND	ND	ND	ND	1	6	ND	96	390 ¹	NO	NA	NO
Indeno(1,2,3-cd)pyrene	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Dibenzo(a,h)anthracene	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Benzo(g,h,i)perylene	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
2,3,4,6-Tetrachlorophenol	170	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO

ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).

NA Not Applicable or available.

CRDL Contract Required Detection Limit.

¹ USEPA Region III Industrial Soil Risk Based Concentration, April 2007.

BG Background sample is not available.

Table 4, Occurrence, Distribution, and Selection of COCs, Groundwater

(DINE

Table 4A. Occurrence, Distribution and Selection of COC's Groundwater Markay Chemicals CERCLIS Site St. Albans, Kanawha County, West Virginia

		Concentration (mg/L)	Proq	managy	Consc	oteroffen	Accilian (Level)		Background	00078\$
COPC	CIRIDA	(GW)-0	Doggets	Samples	(10g/L)	(mg/U.)	(mg/L)	COCS	(mg/l.) Consentention	Climeryed Reference?
1.0			· · · · ·	In	organics (T	otal Metals	s)	1, ,		
Aluminum	200	10,300	1	1	10,300	10,300	37,000 1	NO	NA	YTES
Antimony	60	ND	0	1	ND	ND	NA	NO	NA	NO
Arsenic	10	17.9 B	1	1	17.9	17.9	0.045	82079	NA NA	YES
Barium	200	963	1	1	963	963	7,300 1	NO	NA	YURS
Beryllium	5	2.8 B	1_	1	2.8	2.8	73 1	NO	NA	NO
Cadmium	5	2.7	1	1	2.7	2.7	18 ⁱ	NO	NA	NO
Calcium	5000	33,700	1	1	33,700	33,700	NV	NO	NA	YTES
Chromium	10	25.1	1	1	25.1	25.1	110 1	NO	NA	YES
Cobalt	50	38.2	1	1	38.2	38.2	NA	NO	NA	NO-
Copper	25	20	1	1	20	20	1,500 1	NO	NA	NO
Iron	100	27,400	1	I	27,400	27,400	26,000 ¹	SADES.	NA	YUSS
Lead	10	14.3	1	1	14.3	14.3	15 ²	NO	NA	YES
Magnesium	5000	37,300	1	1	37,300	37,300	NV	NO	NA	YUS
Manganese	100	2,020	1	1	2,020	2,020	730 1	8008	NA	Y088
Mercury	0.2	0.080	1	1	0.08	0.08	2 2	NO	NA	NO.
Nickel	40	154	1	1	154	154	730	NO	NA NA	YES
Potassium	5000	7,040	1	1	7,040	7,040	NV	NO	NA	Y IBS
Selenium	35	ND	0	1	ND	ND	NA	NO	NA	NO'
Silver	10	ND	0	1	ND	ND	NA	NO	NA	NO
Sodium	5000	42,200 B	1	1	42,200	42,200	NV	NO	NA	Y'ES
Thallium	25	ND	• 0	1	ND	ND	NA	NO	NA	NO
Vanadium	50	20.5	1	1	20.5	20.5	37 1	NO	NA	NO
Zinc	60	211	1	1	211	211	11,000 1	NO	NA	· Augs
Cyanide	10	ND	0	1	ND	ND	NA	NO	NA	NO

- ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).
- NA Not Applicable or available.
- NV No Value Available.
- CRDL Contract Required Detection Limit.
 - 1 USEPA Region III, Tap Water Risk Based Concentration, April 2007.
 - 2 USEPA National Primary Drinking Water Standards, Winter 2004.
 - BG Background sample is not available.
 - B Not detected substantially above the level reported in laboratory or field blanks.

Table 4B. Occurrence, Distribution and Selection of COC's Groundwater Markay Chemicals CERCLIS Site ia

Markay Cucinicals Chichib Site
St. Albans, Kanawha County, West Virginia

P COOK	ciam	ianel .	iave)	Consonin	· (CANN-1) ruthur (nick)	Te (4) 19	CAM-COLD	a straight and	- Smithes	Consum Min (ng/L)	200ms	Adding Loose Consentention	የመኖ ዓ	Background Consentedian (ng/L)	Olisaved Release
and to be the desired to the second	all C. Rankschiff ein	erene to the second of	or ordered size	errore and a		Vol	atile Organi			* Articon	ArtiZ\net\			Antison	WEATHERE
Dichlorodifluoromethane	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO.	NA	NO
Chloromethane	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Vinyl chloride	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Bromomethane	0.5	ND	ND	ND	ND	ND	ND	0	. 6	ND	ND	NA	NO	NA	NO
Chloroethane	0.5	ND	ND	ND	ND	1.9	1.8	2	6	ND	1.9	3.6	NO	NA	0,052
Trichlorofluoromethane	0.5	ND	ND	ND	ND	. ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,1-Dichloroethene	0.5	ND	ND	ND	ND	2.1	2.1	2	6	ND	2.1	350 ¹	NO	NA	26002
1,1,2-trichloro-1,2,2-trifluoroethane	0.5	ND	ND	ND	2.9	2.0	2.1	3	6	ND	2.9	59,000 ¹	NO	NA	7023
Acetone	5.0	ND	19 B	4.8 B	ND	ND	ND	2	6	ND	19.0	- 5,500 ¹	NO	NA	7003
Carbon disulfide	0.5	0.85	ND	ND	0.70	ND	ND	2	6	ND	0.85	1,000	NO	NA	7/0825
Methyl acetate	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Methylene chloride	0.5	1.4	0.96 B	1.2 B	ND	ND	ND	3	6	ND	1.4	4.1 ¹	NO	NA	2/082
trans-1,2-Dichloroethene	0.5	ND	ND	ND	ND	1.1	0.85	2	6	ND	1.1	110 ¹	NO	NA	2002
Methyl tert-butyl ether	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,1-Dichloroethane	0.5	ND	ND	ND	3.8	67	59	3	6	ND	67	900 ¹	NO	NA	2,052
cis-1,2-Dichloroethene	0.5	ND	ND	ND	ND	15	14	2	6	ND	15	61 1	NO	NA	7/02/2
2-Butanone	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Bromochloromethane	0.5	ND	ND	ND	ND	ND	ND	. 0	6	ND	ND	NA	NO	NA	NO
Chloroform	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,1,1-Trichloroethane	0.5	ND	ND	ND	ND	5.8	4.9	2	6	ND	5.8	1,700 ¹	NO	NA	7,052
Cyclohexane	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Carbon tetrachloride	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Benzene	0.5	ND	ND	ND	0.75	0.85	0.69	3	6	ND	0.85	0.34	SAILS.	NA_	A022
1,2-Dichloroethane	0.5	ND	ND	ND	ND	6.3	6.2	2	6	ND	6.3	0.12	24052	NA	7/02/5
1,4-dioxane	20	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Trichloroethene	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Methylcyclohexane	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,2-Dichloropropane	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Bromodichloromethane	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA NA	NO	NA	NO
cis-1,3-Dichloropropene	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA NA	NO
4-Methyl-2-pentanone	5.0	ND	ND	ND	ND	· ND	ND	0	6	ND	ND	NA	NO	NA_	NO
Toluene	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA NA	NO
trans-1,3-Dichloropropene	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA NA	NO	NA NA	NO
1,1,2-Trichloroethane	0.5	ND	ND	ND	ND	· ND	ND	0	6	ND	ND	NA	NO	NA	NO

Table 4B. Occurrence, Distribution and Selection of COC's

Groundwater

Markay Chemicals CERCLIS Site

St. Albans, Kanawha County, West Virginia

	And July	Secretary and	Intelligence details	Chusanta	ndino (ngA)	0	The second and second	Pusq	Inductor	Concent	perfitoro	Araffun [Laya] Cancantikalian	Jakin Sakar	(Bookground	DODAS
CONC	cum.	CON-1	(050)-8	(\$707-8)	(25001=0	CANN-S	@ ₩ -0 ₽₽	(Decresors	Samples	\$00to (tog/L1)	(mg/L)		(800C3	(Consequention) (mg/L)	Olimpiyyd Rollwydd
	Volatile Organic Compounds														
Tetrachloroethene	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
2-Hexanone	5.0	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Dibromochloromethane	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,2-Dibromoethane	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Chlorobenzene	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Ethylbenzene	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA NA	NO
o-Xylene	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
m,p-Xylene	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA NA	NO
Styrene	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Bromoform	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
Isopropylbenzene	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,1,2,2-Tetrachloroethane	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA NA	NO
1,3-Dichlorobenzene	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA_	NO
1,4-Dichlorobenzene	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA NA	NO
1,2-Dichlorobenzene	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,2-Dibromo-3-chloropropane	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO
1,2,4-Trichlorobenzene	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	. ND	NA	NO	NA	NO
1,2,3-Trichlorobenzene	0.5	ND	ND	ND	ND	ND	ND	0	6	ND	ND	NA	NO	NA	NO

ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).

NA Not Applicable or available.

CRDL Contract Required Detection Limit.

¹ USEPA Region III, Tap Water Risk Based Concentration, April 2007.

BG Background sample is not available.

B Not detected substantially above the level reported in laboratory or field blanks.

Table 4C. Occurrence, Distribution and Selection of COC's Groundwater Markay Chemicals CERCLIS Site St. Albans, Kanawha County, West Virginia

		5. 18 A. (A)	- Con	sancombro (ua(f)	the even of	Prot	titaji odos	Concer		Action Level (Consequentle)		(Bridlepograf)	00035
СФИС	CLUD	(\$400)	, 18 <i>00-1</i> 0	(500-Ç)	CEVINED		Dotoqu	Shudes	(0g/04)	(109/04) 2002	(ing(i.)	Canc. 8	(mg/L)	Olesowod Rollesse
				1945	Sen	i-Volatile Or	ganic Com	pounds					a Na	
Benzaldehyde	5	ND	ND	ND	ND	ND	0	5	ND	ND.	NA	NO	NA	NO
Phenol	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA.	NO	NA	NO
Bis(2-chloroethyl)ether	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
2-Chlorophenol	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA_	NO	NA	NO
2-Methylphenol	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
2,2'-Oxybis(1-chloropropane)	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Acetophenone	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
4-Methylphenol	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
N-Nitroso-di-n-propylamine	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Hexachloroethane	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Nitrobenzene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA,	NO
Isophorone	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
2-Nitrophenol	5	ND	ND.	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
2,4-Dimethylphenol	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Bis(2-chloroethoxy)methane	5	ND	ND	ND	ND	ND	Ö	5	ND	ND	NA	NO	NA	NO
2,4-Dichlorophenol	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Naphthalene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
4-Chloroaniline	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Hexachlorobutadiene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Caprolactam	5	96	1,300	280	830	430	5	5	96	1,300	18,000	NO	NA	2207
4-Chloro-3-methylphenol	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
2-Methylnaphthalene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Hexachlorocyclopentadiene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
2,4,6-Trichlorophenol	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
2,4,5-Trichlorophenol	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA.	NO	NA	NO
l,1'-Biphenyl	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
2-Chloronaphthalene	5	ND	ND	ND	ND	ND	Ö	5	ND	ND	NA	NO	NA	NO
2-Nitroaniline	10	ND	ND	ND	· ND	ND	0	5	ND	ND	NA	NO	NA	NO
Dimethylphthalate	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
2,6-Dinitrotoluene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Acenaphthylene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
3-Nitroaniline	10	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Acenaphthene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
2,4-Dinitrophenol	10	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
4-Nitrophenol	10	ND	ND	ND	ND	ND	0	. 5	ND	ND	NA	NO	NA	NO
Dibenzofuran	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
2,4-Dinitrotoluene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Diethylphthalate	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
luorene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
-Chlorophenyl-phenylether	. 5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO

Table 4C. Occurrence, Distribution and Selection of COC's Groundwater **Markay Chemicals CERCLIS Site** St. Albans, Kanawha County, West Virginia

	41		Con	contraction (rrg/La)		Opeq	<u>nona</u> y	Conson		Acolforn (Levec)		Buckground	000355
COPPE CONTRACTOR	CROT		@ <i>™</i> =®	©	@W- \$	00000000000000000000000000000000000000	(Datasa)	Samples	NOTE:	News.	Conscionation .	COL 8	Consentration	@b200000
	100		·		1	i-Volatile Or	ganic Com	nounde	(LD()	(mg/L)	(mg(L4)	·	(mg/G-1)	(Reference)
14.312. 111	·	\m_	7/2	,,,,,			0	5	ND	,,,,]	NA	210		
4-Nitroaniline	10	ND ND	ND	ND	ND	ND	0	5		ND	NA NA	NO	NA NA	NO NO
4,6-Dinitro-2-methylphenol	10	ND	ND	ND	ND	ND	0	5	ND	ND	NA NA	NO NO	NA	NO NO
N-Nitrosodiphenylamine	3	ND	ND	ND	ND	ND			ND	ND		NO	NA	NO
1,2,4,5-Tetrachlorobenzene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA NA	NO	NA	NO
4-Bromophenyl-phenylether	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA NA	NO	NA	NO
Hexachlorobenzene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	ŅA	NO
Atrazine	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA NA	NO
Pentachlorophenol	10	ND	ND	ND	ND	ND	0	5	ND	ND	NA NA	_NO	NA	NO
Phenanthrene	5	ND	ND	ND	ND	ND	0	5	ND ND	ND	NA NA	NO	NA NA	NO
Anthracene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA.	NO
Carbazole	5	ND	ND	_ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Di-n-butylphthalate	· 5	ND	ND	ND	ND	ND	0	5	ND	ND	NA NA	NO	NA	NO
Fluoranthene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Pyrene	5	ND	ND	ND	ND	ŅD	0	5	ND	ND ND	NA	NO	NA NA	NO
Butylbenzylphthalate	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
3,3'-Dichlorobenzidine	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Benzo(a)anthracene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Chrysene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Bis(2-ethylhexyl)phthalate		ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Di-n-octylphthalate	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Benzo(b)fluoranthene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO.
Benzo(k)fluoranthene	. 5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Benzo(a)pyrene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Indeno(1,2,3-cd)pyrene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
Dibenzo(a,h)anthracene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	ŃO
Benzo(g,h,i)perylene	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO
2,3,4,6-Tetrachlorophenol	5	ND	ND	ND	ND	ND	0	5	ND	ND	NA	NO	NA	NO

NOTES:

ND. Not detected at a concentration greater than the Contract Required Detection Limit (CRDL). NA Not Applicable or available.

CRDL Contract Required Detection Limit.

l USEPA Region III, Tap Water Risk Based Concentration, April 2007. BG Background sample is not available.

CRIGIALA Appendix 1, Organic Data Validation Report



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION III ENVIRONMENTAL SCIENCE CENTER 701 MAPES ROAD FORT MEADE, MARYLAND 20755-5350

DATE

: July 6, 2007

SUBJECT:

Region III Data QA Review

FROM

Khin-Cho Thaung 17 WCCT

Region III ESAT RPO (3EA20)

TO

James Hargett

Regional Project Manager (3HS12)

Attached is the organic data validation report for the Markay Chemicals site (Case # 36456 SDG #C0001, C0007) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2743.

Attachment

cc: Pamela Hayes (WV Dep)

TO File #: 0007

TDF#: 0675

LOCKHEED WARTING
We never forget who we're working for™

Lockheed Martin Enterprise Solutions & Services ESAT Region 3 US EPA Environmental Science Center 701 Mapes Road Ft. Meade, MD 20755-530 Telephone 410-305-3037 Facsimile 410-305-3597

DATE:

July 5, 2007

SUBJECT:

Level M2 Organic Data Validation for Case 36241

SDGs: C0001 and C0007 Site: Markay Chemical

FROM:

Shilpa Udani

Organic Data Reviewer

Mahboobeh Mecanic (M) Senior Oversight Chemist

TO:

Khin-Cho Thaung

ESAT Region 3. Project Officer

OVERVIEW

Case 36241 Sample Delivery Groups (SDGs) C0001 and C0007, consisted of seven (7) aqueous samples analyzed for trace volatile and semivolatile and eighteen (18) soil samples analyzed for volatile and semivolatile, three (3) aqueous trip blanks and one (1) aqueous sample analyzed for volatile compounds only. All samples submitted to KAP Technologies, Inc. (KAP) for analyses. The sample set included two (2) rinsate blanks and three (3) duplicate pairs. Samples were analyzed according to Contract Laboratory Program (CLP) Statement of Work (SOW) SOM01.1 through Routine Analytical Services (RAS) program.

SUMMARY

Data were validated according to Region 3 Innovative Approaches for Validation of Organic Data, Level M2. This level of review includes assessment of all Quality Assurance/Quality Control (QA/QC) data and review of chromatograms, but excludes review of raw data and sample spectra. No technical problems were noted based on level of review requested.

MAJOR PROBLEMS

Relative Response Factors (RRFs) in trace volatile and volatile initial and continuing calibrations
were less than 0.005 for 1,4-dioxane. Quantitation limits for this compound in affected samples
were rejected and qualified "R" on the Data Summary Forms (DSFs).

• The following samples reported recoveries of Deuterated Monitoring Compounds (DMCs) less than ten percent (<10%). Quantitation limits for compounds associated with these DMCs were rejected and qualified "R" on the DSFs.

SDG	<u>Fraction</u>	<u>Sample</u>	<u>DMC</u>
C0001	SVOC	C0003	2,4-Dichlorophenol-d3
C0007	SVOC	C0021	4-Chloroaniline-d4

MINOR PROBLEMS

- Several compounds failed precision criteria [Percent Relative Standard Deviations (%RSDs) and/or Percent Differences (%Ds)] in the trace volatile, volatile and semivolatile initial and/or continuing calibrations. Positive results reported for these compounds in affected samples were qualified "J" on the DSFs unless superseded by "B". The imprecision did not exceed fifty percent (50%) criteria; therefore, quantitation limits were not qualified.
- Internal standard (IS) area counts were less than the lower control limit in the following samples listed. All samples were reanalyzed with similar recoveries except for volatile sample C0013 (SDG C0007) which was not reanalyzed as required. The initial analyses results for these samples were reported on the DSFs. Reported results and quantitation limits in these samples were qualified "J" and "UJ", respectively, on the DSFs unless superseded by "R".

<u>SDG</u> C0007	Fraction VOC	Samples C0013, C0014, C0016, C0017, C0019, C0020	Internal Standard 1,4-Dichlorobenzene-d4
		C0015	Chlorobenzene-d5, 1,4-Dichlorobenzene-d4
	SVOC	C0015 C0017	1,4-Dichlorobenzene-d4, Naphthalene-d8 1,4-Dichlorobenzene-d4, Naphthalene-d8, Acenapthene-d10

- Internal standard (IS) area counts for chlorobenzene-d5 and 1,4-dichlorobenzene-d4 were less than the lower control limit in volatile sample C0018 (SDG C0007). This sample was reanalyzed with recovery of 1,4-dichlorobenzene-d4 outside the lower control limit. The reanalysis results for this sample were reported on the DSF. Quantitation limits for compounds associated with this internal standard were qualified "UJ" on the DSF.
- The following samples had recoveries of DMCs outside the upper Quality Control (QC) limits.

 The positive results associated with these DMCs were qualified "K" unless superseded by "B" or "J" on the DSFs.

SDG	<u>Fraction</u>	<u>Samples</u>	<u>DMC</u>
C0001	Trace VOC	C0032	Chloroform-d
C0007	VOC	C0015	1,2-Dichloroethane-d4
		C0018RE	Toluene-d8

OP/G/A

• The following samples had recoveries of DMCs outside the lower QC limits. Quantitation limits for compounds associated with these DMCs were qualified "UL" on the DSFs unless superseded by "R".

<u>SDG</u> C0001	Fraction Trace VOC	<u>Samples</u> C0002, C0003, C0006, C0031 C0002	DMC trans-1,3-Dichloropropene-d4 1,4-Dioxane-d8
	svoc	C0004, C0006 C0003, C0004, C0005, C0006 C0004, C0005, C0006	2,4-Dichlorophenol-d3 Pyrene-d10 Benzo(a)pyrene-d12
C0007	SVOC	C0009, C0017, C0018, C0019	Pyrene-d10

NOTES

• Concentration of target compound found in the analysis of trip, rinsate, method and storage blanks are listed below. Samples with concentration of these common laboratory contaminants less than ten times (<10X) blank concentrations have been qualified "B" on the DSFs.

SDG C0001	Blank Method (VBLKDZ)	Compound Methylene chloride	Concentration 0.85 ug/L	Affected Samples C0002, C0003
	Trip (C0030)	Acetone	13 ug/L	C0002, C0003
C0007	Method (VBLK80)	Methylene chloride	3.9 J ug/Kg	C0008, C0015
	Method (VBLK82)	Methylene chloride	2.5 J ug/Kg	C0021, C0022, C0023, C0025
	Trip (C0030)	Acetone	13 ug/L	C0012, C0019, C0020, C0021

• The concentrations of several compounds in samples listed below exceeded the calibration range in the initial analyses. These samples were diluted and re-analyzed to bring the concentrations of these compounds within the calibration range. Results for these compounds are reported from the diluted analyses and annotated with a (+) symbol on the DSFs by the reviewer.

<u>SDG</u>	Fraction Praction	<u>Samples</u>	Dilution Factor	<u>Compounds</u>
C0001	Trace VOC	C0005, C0006	10 X	1,1-Dichloroethane
	SVOC	C0001	4 X	Caprolactam
		C0003	100 X	Caprolactam
		C0004	8 X	Caprolactam
		C0005	20 X	Caprolactam
		C0006	10 X	Caprolactam

OPIGINA

The following samples had recoveries of DMCs outside the QC limits. Since the associated sample results were either not reported from dilution or reanalysis analysis or were non-detects, no data qualifying action was taken by data reviewer.

SDG Fraction C0001 Trace VC		<u>DMCs</u> 1,2-Dichloroethane-d4 1,2-Dichlorobenzene-d4 1,4-Dioxane-d8
VOC	C0013, C0015, C0015RE, C0018, C0018RE	Vinyl chloride-d3
·	C0013, C0015, C0015RE, C0016RE, C0017RE, C0018, C0018RE, C0019, C0020	Chloroethene-d2
	C0015	Chloroform-d
	C0013, C0017RE, C0018	1,2-Dichloroethane-d4
	C0013, C0014, C0015, C0016, C0017, C0018, C0020, C0015RE, C0016RE, C0017RE, C0018RE, C0020RE	Benzene-d6
	C0013, C0014, C0015, C0016, C0017, C0018, C0019, C0015RE, C0016RE, C0017RE, C0018RE, C0020RE	1,2-Dichloropropane-d6
	C0013, C0014, C0015, C0016RE	Toluene-d8
	C0013, C0015, C0015RE, C0017RI C0020RE, C0018, C0018RE	E, trans-1,3-Dichloropropene-d4
	C0018	2-Hexanone-d5
	C0015	1,4-Dioxane-d8
SVOC	C0017RE	Benzo(a)pyrene-d12

Semivolatile samples C0011 and C0018 (SDG C0007) were collected on 6/13/2007 and extracted on 06/25/2007. The aqueous technical holding time of (7) days from time of sample collection was exceeded by five (5) days. Due to the stability of semivolatile compounds in the soil matrix, no data qualifying action was taken by data reviewer based on holding time outlier unless the holding time of fourteen (14) days was exceeded. The contractual holding time of ten (10) days from Validated Time of Sample Receipt (VTSR) was exceeded by one (1) day.

- OHIGINAL
- Internal standard area counts for phenanthrene-d10, chrysene-d12 and perylene-d12 were outside the lower control limit for initial calibration standard SSTD02048 (20 ug/L) (SDG C0007). No data were qualified based on these outliers.
- Trip and rinsate blanks were utilized to assess field contamination based on corresponding sampling dates for this case.
- Encore tubes were used for collection of volatile soil samples in this sample set. All samples
 were transferred and kept frozen until time of analysis. No action was taken by the reviewer.
- A sample mass other than five (5) grams was used for samples associated with this case. Dilution factors reported on DSFs reflect actual sample masses used.
- Results for volatile and/or semivolatile field duplicate pair, samples C0006/C0007 (SDG C0001), C0008/C0012 and C0022/C0023 (SDG C0007), were comparable for all compounds in each fraction except for benzaldehyde in semivolatile samples pair C0008/C0012.
- No positive results were reported in the analysis of semivolatile duplicate pair C0022/C0023 (SDG C0007).
- Tentatively Identified Compounds (TICs) were reviewed during data validation. Compounds
 identified as blank contaminants or compounds from other fraction were crossed off TIC Form Is
 by the reviewer. TIC Form Is for samples in which TICs were identified are included in
 Appendix E.
- Compounds detected below Contract Required Quantitation Limits (CRQLs) were qualified "J" unless superseded by "B" on the DSFs.

All data for Case 36456, SDGs C0001 and C0007, were reviewed in accordance with Region III Modifications to the National Functional Guidelines for Organic Data Review, September 1994.

ATTACHMENTS

- 1) Appendix A Glossary of Data Qualifier Terms
- 2) Appendix B Data Summary Forms
- 3) Appendix C Chain-of-Custody Records
- 4) Appendix D Laboratory Case Narrative
- 5) Appendix E Tentatively Identified Compounds (TICs)

DCN: 36456 - C0001 and C0007

Appendix A

Glossary of Data Qualifier Codes

ORIGINA,

GLOSSARY OF DATA QUALIFIER CODES (ORGANIC)

CODES RELATED TO IDENTIFICATION

(confidence concerning presence or absence of compounds)

- U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.
 - NO CODE = Confirmed identification.
- B = Not detected substantially above the level reported in laboratory or field blanks.
- R = Unusable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.
- N = Tentative identification. Consider present.
 Special methods may be needed to confirm its presence or absence in future sampling efforts.

CODES RELATED TO QUANTITATION

(can be used for both positive results and sample quantitation limits):

- J = Analyte present. Reported value may not be accurate or precise.
- K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- UJ = Not detected, quantitation limit may be inaccurate or imprecise.
- UL = Not detected, quantitation limit is probably higher.

OTHER CODES

NJ = Qualitative identification questionable due to poor resolution. Presumptively present at approximate quantity.

Q = No analytical result.

OPICIAIA,

Appendix B

Data Summary Forms

OPIGINAL

DATA SUMMARY FORM: Trace Volatiles

Page __1__ of __26__

Case #: 36456

SDG: C0001

MARKAY CHEMICALS

Site: Lab. :

KAP

Number of Soil Samples: 0 Number of Water Samples: 11

Sample Number :		C0001		C0002		C0003		C0004		C0005	
Sampling Location :		GW1		GW2		GW3		GW4		GW5	
Field QC:		ļ								Dup. of C00	006
Matrix:		Water			Water		Water			Water	
Units:		ug/L	ug/L		ug/L		ug/L		ug/L		
Date Sampled :		6/12/2007		6/12/2007		6/12/2007		6/13/2007		6/13/2007	
Time Sampled :		13:00		15:15		14:00		09:00		11:00	
pH:		< 2		< 2		< 2		< 2		< 2	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0 / 10	
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifie@orapthane	0.50										
Chloromethane	0.50	errenies in energy and	San central	CUPARA DESCRIPTION	en oberazi	TO ANN THE BATTON TWO	COSERVATIVA	Filoto Victor de Augustos	men etter	historii Britanda II. 1974 mad 1974 il	# 12 Salawa
Conflictions 432	10.50					740					1
Bromomethane	0.50	20000000000000000000000000000000000000	HEROLUS CONT.	NOTE: STATE OF THE PARTY OF THE	**************************************		Process		275-8-825 275-8-825	THE THE PROPERTY OF THE PARTY.	31:275th
Chlorediane	0.50		21.2		27.25				67/1		4
Trichlorofluoromethane	0.50	respective strongs	Mark of the last	dent ivas Peropori	entry vestes	Terreini ento area l'altreita	BESSELF MAD	Selbe men sitetä men 100	True States	an alternation	
1,1-Digitieroethene	0.50		游戏							27.	No.
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	eco obradonia	Burran	SSE NOVEMBER STREET	100 SANSTON	reservaciones del	HANNET.	2.9	istratus (194	2.0	#7 \ ∓≥
Acetorie	5.0			16	•	4.8	8				路線
Carbon disulfide	0.50	0.85	otio di ca	Bertisa indap	1498	ika i cermentili (190	KIGONAL	0.70	£2745~°⊖s	表 型地区化内等级 建 理	128.2%
Methyl acetate	6,50	記憶の強		等终。 在14年间			等表面		是仍然	建设公司	1
*Methylene chloride	0.50	1.4 ar manasaratsa	iZ sike t ik	0.96 85 (1886) - 1.00	B ‱⊚©	1.2	8 ::::::::::::::::::::::::::::::::::::		9625475	historik kuthanik	Alderia Alderia
trans-1,2-Dichloroethene	0.50	图》系統數	のは数量	15 15 15 15 15 15 15 15 15 15 15 15 15 1	24					20-31-19	7. 7.
Methyl tert-butyl ether	0.50		in out		Mariani Mariani	·····································		2.8	istainis S	67	03/19%
1,1-Dichlorcethane	0.50		3 3 M 1 4 4	學問題至如為他	新公开			(3) A 65 6	7 2 58		13 M.S
cis-1,2-Dichloroethene	0.50 5.0	Separation of	# 1150/2	48751.0.1437 41 9 -1	જાનો મું		erine erin	904430868	A 6 3 4 2	15 88.8888.033	
*2-Betanone Bromochloromethane	0.50		15 1 1 1 1 1 1 1 1		East the	医爱见器位数			製造を		
Chleroform	0.50				50.50						注影 数
*1,1,1-Trichloroethane	0.50	是 然是这种是100		A STATE OF THE STA	Sept.	ing district		SECRETALISM.		5.8	100430
Cyclonecane	0.50				NE SE						200
*Carbon tetrachloride	0.50	の事がのとは	AATA LISTE	ELECTOR SERVICES			STATE OF	ation and	新安田安东	STATE OF THE PARTY	77.533
Bergene	10.50										4.5
*1,2-Dichloroethane	0.50		THREAL	ALIMUNIPOLISE.	16344	A to Called A To Lake	No. of Persons		CARLOW.	6.3	is Costa
1.4-Diexane	20	E-POPE			h.						
Trichloroethene	0.50	(6) M. (17) 10) FEB. (20)	50. 466.73	ng-historian	O/APPARAS	ANN CONTRACTOR	AL MARIANA	AND THE PERSON	PER 3 450 FG	ALL CASSESSED FOR	A. 12:15
Methylaycloheada	0.50		26.5		E ND						
*1,2-Dichloropropane	0.50	NOS-SAGORANTESAS	ran go	AND TO AND STORE	renoved:	Delanger (1974)	estrak (EK)	PALAPYCLIES REPLYED	reinte T	MARKET MEDITING	46027
Bromodichioromethane	0.50	KAN TAN		M35-78-86						1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	200
cis-1,3-Dichloropropene	0.50			es a militaria	UL	The specific field of	UL	DUB - BARTER	nii ii Çffe	revise and the equipment	T ***
4-Mathyl-2-pentarione	5.0	MINISTER					COA. JARCAS	West of the second			
*Toluene	0.50			T. 1. 18 18 18 18 18 18 18 18 18 18 18 18 18		e e a la transita de la 1900.	(21 * * *	and the Control of the second	p:::>> <	हर १६ १स. १४७११४४४ 	Permanental
trans-1,3-Dictiloroprepane	0.50	การการ อาร์สตร์ 2011 กลา		10:100 A	UL		u		- 18	Market Market	1
"+" = Result is reported from dilute		/eie	2004 044 477	A COLUMN ACTION ACTION			No. of the	CONT. S PRESENTATION		The state of the s	

Page __2_ of __26__

Case #: 36456

SDG : C0001

Site :

MARKAY CHEMICALS

Lab.: KAP

Sample Number :		C0001		C0002		C0003		C0004		C0005	
Sampling Location :		GW1		GW2		GW3		GW4		GW5	
Field QC:		[[Dup. of C0006	
Matrix :		Water		Water	er Water		Water			Water	
Units:		ug/L ug/l		ug/L	g/L ug/L			ug/L	ug/L		
Date Sampled :		6/12/2007		6/12/2007		6/12/2007		6/13/2007		6/13/2007	
Time Sampled :		13:00		15:15		14:00		09:00		11:00	
pH:		< 2		< 2		< 2		< 2		< 2	
Dilution Factor :		1.0 1.0		1.0	1.0			1.0		1.0 / 10	
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1,1,2-Trichloroethane	0.50	No. 1. carron was soon		Correct Correct Co	UL	enter de la companya	UL	Sizboan		auter over the factor of	
Tetrackloroethene	0.50			例。公文建							
2-Hexanone	5.0	and the second	en en ad	en auma manendarel	MESSEL ASSESS	Manager States (Publication	- X	Part (CCC) with A. Ales of	nes steerin	and the state of the state of the state of	77.55.00.00
Dibromochloiomethane	0.50								3 4.5		
1,2-Dibromoethane	0.50	Bar Bul Attiewesa s	31.30F ABS	seen oor oo suureen sameri	e s mant are	Table 100 (1858)		e and marketing of the sec	ATTER PROJECT	Martine son, analysisinan	and the second second
*Chlerchenzerie	6.50										
*Ethylbenzene	0.50	emilia e e la sulla colonida		Barrella de la company	r sair me	er un a mar au spaar auste af	092650	AND COMPUNIC PROPERTY.		ene - coal its start, allabound	. NO. 7 47'
o-Xyllene	0.50		3								
m,p-Xylene	0.50	encede son Joseph	· Maine	tus and helicine renal relation	V . Value Tibed	esconii roma - Strote	Later Street Tools	Salama Salama da Salama da Mariera	**********	enen c. cementaring Tro and	
Striene	050	3.5		是的基础	0 专					2	
Bromoform	0.50	0 - 11 - 10 - 10 - 10 - 10 - 10 - 10 -		the time. Such as here had		No. and the second second	buse reacte	Non-Arris Mark and a	- ration that	Name and the American State of the State of	
· leopropyliperizene	0.50	第 次第一个第								建筑基础	7.1
1,1,2,2-Tetrachloroethane	0.50	more more and a second		erang sada eranggan es	SER SOFFEE	rock which is a farmer or market	erici accessos	manumentures automos	and the second	nes de calantalista di nuclei	STATE OF THE STATE
1,3-Elichiorobenzene	0.50		数数						7.88		
*1,4-Dichlorobenzene	0.50	e andresse et al. andres	una com	وموارد والمناورة والمناور والمراود	Nije ucojska	e Santa di basa di Santa di Santa	وهوس - جيرا	المالية	(SPENYAL)	ANGLE OF STREET	N.57.86 . 14
1,2-Dichlorobertzene	0.60			記書影響				A 67 (3)	爱		要能
1,2-Dibromo-3-chloropropane	0.50	an value and an a more and	en seare	nantus teo see diseas.	C	LAND OF THE PARTY.	550.0% Pr	nas are vers in the	مهم ديون	and the state of t	k-140 b-
1,2,4-Trichlorobenzene	0.50		經過				F 31				
1,2,3-Trichlorobenzene	0.50	<u> </u>				<u> </u>	L				

CRQL = Contract Required Quantitation Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

Revised 09/99

To calculate sample quantitation limits: (CRQL * Dilution Factor)

Саве #: 36456

SDG : C0001

Site : Lab. : MARKAY CHEMICALS

KAP

Sample Number :		C0006		C0027		C0028		C0030		C0031	
Sampling Location :		GW6		SW2		SW3		SW5		SW6	1
Field QC:		Dup. of C00	05	Rinsate Bla	nk	Rinsate Bla	nk	Trip Blank		Trip Blank	
Matrix:		Water		Water		Water		Water		Water	
Units:		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	1	6/13/2007		6/12/2007		6/12 /20 07		6/12/2007		6/12/2007	
Time Sampled :	Ì	11:00		14:30		12:00		13:00		15:30	
pH:		< 2		< 2		< 2		< 2		< 2	
Dilution Factor :		1.0 / 10		1.0		1.0		1.0		1.0	
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichloromethere	0.50						製な意			ALI ARIMI	
Chloromethane	0.50	District Commence	References	Constitution of the consti	Ch.3476884	an a come contra com	N/Salva	terrorrorens de la California.	Residents	arentini eret kür	arenne e
"Viryl dillande	0.50										
Bromomethane	0.50	en in home	ros acco	Principal Article (I	gurigini	s reported to soles	E-1924-191	eterranovera ar a	arenaea	a tha an tha said the	e e e e e e e e e e e e e e e e e e e
Chloroéthane	0.50	1.8			# A1		March 1	語句為實際			可以的
Trichlorofluoromethane	0.50	910 - 101 75 62-52	₹ _{0.4} 5#9%	rage in proceedings	শূরণ সৈত্ত	aurijanski betere	Section 1		製造な数	ener Santaan Siner Santaan	
*1,1-Dichlorcetherie	0.50	21	104					的特殊的不是特			
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50 5.0	2.1 agan mukanska	१५१५६६ हा १५१	81776JAR898	MARKEN	TENTH TENTH	2000252 <u>5</u>			7 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	CONTRACT
Acolom		# Gurling South			44.K.A.	49833312888			影及的是		30,32
Carbon disulfide	0.50		(* 3 40) (19	eruomora	277334X		MALES A		Electric Control		
Marror Counts	0.50	D'ARTES, AL		多 种/变织。				為於當時以為	9300		385 537
*Methylene chloride trans-1 ** Dichloros (1819)	0.50	0.88									
the state of the s	0.50	*	ASSAULTE.		語形人類				a de la compa		
Methyl tert-butyl ether 1.1-Dichleroemente	0.50	59.4	16-18-24								W30
cis-1,2-Dichloroethene	0.50	14	*. 90 (\$P)	Barran Andreada	Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Car	AND A SECOND		建 化。 的 使物理的现在	2.1020100	Hard Herbert States	and the second
2-Buttone											STORES.
Bromochloromethane	0.50		isine Appigna).	ar seek also de la comp	37.022.754	CLASS AND STATE	ne and and a	PROPERTY SEED BOOK	PSU PERM	STATE OF THE STATE OF	e e e e e e e e e e e e e e e e e e e
Chloroform	0.50			70.5		-90				**************************************	
*1,1,1-Trichloroethane	0.50	4.9	GATAAN	Market Company	302,600,000	Marie Carlos Commission State	20 E 30 7 6 E 10	CTT (MANAGEMENT) (STORE)	Act	Marie and a consistency	2
Cyclohexaure	6.60										
*Carbon tetrachloride	0.50	pasi, ne vi useni jari	Dr. American	Principality (Street, 10)	135.000	STORES SANCTON STATE OF STATE	25322	145 (v.) 2 tc · · · · · · · · · · · · · · · · · ·			
*Bensens	666	4169				种弹簧					
*1,2-Dichloroethane	0.50	6.2	and the second	CONTRACTOR STREET		-	200.4114.903				T
1,40 0000	× 40.										
Trichloroethene	0.50				T		I				
Methyloyclonergae	1050										7.77
*1,2-Dichloropropane	0.50	I			L		L.,		L		
Bromodicaloromethane	0.50										
cis-1,3-Dichloropropene	0.50		UL		1		.	Land An Anna San			UL
4-Methyl-2-pentertoris	5.0			門。劉朝朝							
*Toluene	0.50				.			A TABLE SALE OF THE PARTY	V.S.J. 6.270	Marie and a second second	re CEAR (C. 1)
trans-1,3-Dichloroproperie	6.50		UL.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			ii.r			, A	UE

"+" = Result is reported from diluted analysis.

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Case #: 36456

SDG: C0001

Site:

MARKAY CHEMICALS

Lab.:

· KAP

Sample Number :		C0006		C0027		C0028		C0030		C0031	
Sampling Location :		GW8		SW2		SW3		SW5		SW6	
Field QC:		Dup. of C00	05	Rinsate Blan	rte Blank Rinsa		Rinsate Blank			Trip Blank	
Matrix:		Water		Water	. Water		Water		Water		
Units:		ug/L ug/		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		6/13/2007 6/1		6/12/2007		6/12/2007		6/12/2007		6/12/2007	
Time Sampled :		11:00		14:30		12:00		13:00		15:30	
pH:		< 2		< 2		< 2		< 2		< 2	
Dilution Factor :		1.0 / 10 1.0		1.0		1.0		1.0		1.0	
Trace Volatile Compound C	RQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
A state of the second stat	0.50	Service of the community of the	UL	: KERTISTITZANIAROWEDAZAWA	97.1X1452A	en er læge yektede	Earth Carrier (1884)	KOC KOPA LIVERNIKE	NEW THE PROPERTY COME	Shoulder the set, make	UL
*Tetrachloroethene	150	新作品。									
	5.0	TOTO VICTORIA ET LANGE	na caner.o	land a per material	netterate state	SAME OF STREET	Marine States	CHANGIN TOWN, THE SHAPE WAR AND SHAPE	estation/shi	T TO SHOULD WIND COLUMN	ere et en e
Dibromochicromethane	10		数数		第 点		584				
. The time at a comment of the second of the).50	e manera e en especies	of the Market	MENONAL MANAGERIA		ATTACE TO A TAKEN OF THE	976 (T.P.)	and the company of th	# SheetSh	Constant to be described.	edecid zosta
*Chlorobertzene			茅製								
	0.50	odi MESTENO 7 1 Milita	anio auro	is i ellogoppedis	THE PROPERTY OF	anutorem stransletas tae	0.99427983556	OF SAN ALLEY TOWN	1900m832 11 1	NO-the TO: 10 birds high	CONTRACTOR
Transferred by a series of the					357			克纳加克	135		
m,p-Xylene	0.50	Herritz associations	e.w.ese	udo ser o qui mineti i in diogr	8.8 /8 -30-8	KARABINI RAKATAKAN	सर्वेद्र (अंदर के	taran kan asa tarah da	e postena s in	Marketti er erlennetti	an and a con
	30		040								
	0.50	Delegation of the second	والوجاء إفاره باستيا	4054035505638688	erou.		E.260-27	en despressivent	Sept to the last	ବିଷ୍ଟେପ ନା' (ମନ୍ଦ୍ର ଅବଶ୍ୱ ଲେମ୍ବରଫର	Notes And
			Kart.								1
	0.50	erenereltureani.	like i za kezio	ero madelaria (n. 1948)	er i territorial	enesara la la la vega e	tertales.	THE TEA THE RESIDENCE	SIGN NATUR	Zaran in managen an	answerser
The same and the s	150			是能深。主義							
The state of the s	0.50	Par Noville State of the State of	-90-1138 190-1138	EMILTANIEST (2)	58000798	Englander Weiske		nasologies	2532 357 0		TABLES CON
).50	機一門を持し	100	TO SEE	州語	植物形态		以行政党制度	(1) (2)		
	0.50	302754	a Norman	والمجموعي وجادواني وإيا	Felono 2 Kid	Program de des	No of the	late Jorge Sangel	of the battle	lansnæreræret	5.52596°
	2.50				X , 2*	1440年		5.85% 有限			
1,2,3-Trichlorobenzene 0	0.50				L	L	L		Ļ		

CRQL = Contract Required Quantitation Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor)

Revised 09/99

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Case #: 36456

SDG : C0001

Site :

MARKAY CHEMICALS

Sample Number :		C0032									
Sampling Location :		SW7						1			
Field QC:		Trip Blank]		1			J
Matrix:		Water					i				
Units:		ug/L								,	
Date Sampled :		6/13/2007				[[ſ
Time Sampled :		09:00									
pH:		< 2									- 1
Dilution Factor :		1.0			_						
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichorodifluorometherie	0.50						對國		200		
Chloromethane	0.50	Micros es pobleción de premi	C. Terrio Lis	la markalanan etakan	65-Ca + 23 1-Ca +	Gran e (Troughs to English St	nedroniko	Designation of the second second	ATELEME DA	t kiran tem berekele best	
Ving chicide	050		100								
Bromomethane	0.50	Bertsesssenssen Att.	Alter vers	seh inggni Menjakingsi	505000M	DANGER AND THE WORLD	era karektule	(4) (2) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	English with the	en er en	E-SECTION OF
Chigreethone	0.50	多名的基础的		智用更为的		語物型於他們	4		950	地 拉斯里斯	
Trichlorofluoromethane	0.50	PROPERTY ASSESSMENT	er og skalen	ilea arabatzakan	ostavat	organistic et al.	naid unai te	LEARCEST AND SERVE	erren erre	76 P. DE 1800 1997	984339.0014
* Charlothabere	0.50	其思想語到		may see			形器		\$ 100 m		
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	use same esa	erenistra.	an en	eese ar			reconsideres	ing sa		100.00
Acetorie	50	MATERIAL	R#82				1000		等性語		
Carbon disulfide	0.50 0.50	rentystykussel	30 3803 0		120 ENE		i dayar			Leursser	
Methyl acetate	CARRY CONTRACT							REAL OF STATE		A A A SECTION	海马
*Methylene chloride	0.50 0.50	er en	17454A		20 H.	KAMASAKA MATA		7.00 Z	73.20.22		
trans-1,2-Dichlorcethene	0.50	F TO SERVE	A Control			16 Sec. 18	的標是		1000		24 C.
Methyl tert-butyl ether 1,1-Dichtoroethans	0.50 0.50	WAR SCHOOL	8000 M	Marco.vide	En Itali		157036	NAN TAKE		NE THE	28358
cis-1,2-Dichloroethene	0.50	£ेड्डिटी#डचे के लिखे रेख	المراج المراجع	liki (liki i sa lah)	Parking Salah	SALES CONTRACTOR	が一直を				
*2-Butarione	5.0		O AS		%		NICES:	evilte (#	数額		
Bromochloromethane	0.50	Property and making and		কৈছে - সংগ্ৰহণ	P.Kan yi −i j	Complete Sea (1944) At	3988. ES	engantes des produc	A SACRETON	Maria (Samari Colori	765.75°
and the second s	0.50	8.9.	K.		\$3° 4						
*1,1,1-Trichloroethane	.0.50	(William considerate Cart)	Arguments (1974)	PROFILE WAS A CANADA	n Bren di	はていコ じいき みしべる 大野	and the property of	CONTRACTOR OF NAME	Sept.	eringen er i nam.	174-+1-5
Cyclotiecane	050								73.5%	F/2-134	
*Carbon tetrachloride	0.50	ASSESSMENT AND SPECIAL	277 1/25X4	Service Marie Contraction of the	Market Section		10.70 2600	EM to 6 representation	n je spiele	MALI ELLANDA MINISTER	(ADAY) (UD)
Belland Color Carlo	1000										
*1,2-Dichloroethane	0.50				[
14Dorans											
Trichloroethene	0.50	Last. Co., (Cal.)		1245 3 1 m 1 G 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Ī				~,		, Kak Jakob
Melhylcyclonecture	0.50			非洲流							
*1,2-Dichloropropane	0.50							I			
Bromodichioromethene	0.50	2.9		的學典學		"阿拉斯斯"					
cis-1,3-Dichloropropene	0.50				. '				L		
4-Methyl-2-pentanone	5.0	於計程第	漢集		際語						
*Toluene	0.50	langer of the second		n e e e e e e e e e e e e e e e e e e e		. Note that are a second			3071-1-1-1	Section 1	
trans-1,3 Dichloropropers	0.50			San Lock	10) 1044 20,000						

NO MAIN

Case #: 36456

SDG : C0001

Site:

MARKAY CHEMICALS

Lab :

KAP

Sample Number :		C0032									
Sampling Location :		SW7			ĺ						
Field QC: .		Trip Blank									
Matrix:		Water									
Units:		ug/L									
Date Sampled :	1	6/13/2007		-		Ì					
Time Sampled :		09:00			i	,					
pH:		< 2									
Dilution Factor :		1.0									
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1,1,2-Trichloroethane	0.50 9.50	10:5 1:51:51:51	11474								
2-Hexanone	5.0	1945C1103134	沙沙岛 海通	es in lateral and				nes de la company		National Property and Pro-	2523955
District welcongrupe with a	0.50										
1,2-Dibromoethane	0.50			Manuscripton product	TET 16.2 TE	esta villingo est	a visekās net	understable to tope our HEA o	2000 000	TOTAL SUMMERS OF STREET	en varietischer (
nchlerobenzene	0.50		7							是使用	
*Ethylbenzene	0.50	ana a estar a municipal	77 NEAR OF 27	r. n. n. s.	-mearten	TOTAL T. (STOCKEL) NAMED OF	interación de la compania del compania del compania de la compania del compania del compania de la compania del compania d	ele talent elektrisk flore e sterlitt	inaceres de	erron soften er a forteler	n new second
d-Agede 1	0 50		91.00								
m,p-Xylene	0.50	54550506507557 HZD	T-OVER-13	(商金年)公司		Programmen Programmen	Table Trees	TRACES TO THE PROPERTY AND ADDRESS OF THE PARTY AND ADDRESS OF THE PART	recordered		e: 525-2005-23
Styrene	0.60		7.4		\$ 2000 1000 1000 1000 1000 1000 1000 1000		警戒				
Bromoform	0.50	18659 (SSE) 1867 (S	ent est	WEST CONTROL OF A STATE OF A STAT							37.00E
(sopropyl)benzene	0.50	100	等質						200		X
1,1,2,2-Tetrachloroethane	0.50	CONTRACTOR FOR A CASA	madala 455		ek versi		PARTY.		XX.000		PARTER T
*1,3-Dichloroberizene	0.50		1100	建筑建筑	THE STATE OF		沙龙道				是原語
*1,4-Dichlorobenzene 1,2-Dichlorobenzene	0.50 0.50					计选择的类					
1,2-Dibromo-3-chloropropane	0.50	स्थानका स्टब्स्य क्रिकेट	ಜ್ಞ ಎಣಕ ಿಕೆ≎!	and the second second second second	P∰(N) v≃;tk)	· 씨는 · 그 : 그 (박기)는 : 12 변수 없는	A STATE OF	POWER STATE OF STATE	. 3 . 9.5 . 3 (1)	no the risk samplike	MAKASON SE SE
1,2,4-Trichlordserzene	0.50	建 拉斯姆		更有法律				WARRY.			配
1,2,3-Trichlarobenzene	0.50						L				

CRQL = Contract Required Quantitation Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor)

Revised 09/99

Page __7__ of __26__

ORIGINAL

Case #. 36456

SDG : C0007

Site: Lab.: MARKAY CHEMICALS

KAP

Number of Soil Samples: 18

Number of Water Samples: 0

Sampling Location : Field QC : Matrix : Units : Date Sampled :	SB1 Soil ug/Kg 6/12/2007 11:15	į	SB2 Dup. of C00 Soil ug/Kg	12	SB3 Soil		SB4 Soil		SB5	
Matrix : Units : Date Sampled :	ug/Kg 6/12/2007		Soil	12	Soil		Soil			Ì
Units : Date Sampled :	ug/Kg 6/12/2007				Soil		Soil			L
Date Sampled :	6/12/2007		ug/Kg				~~	i	Soil	
•					ug/Kg	i	ug/Kg		ug/Kg	
l	11:15		6/12/2007		6/12/2007	1	6/12/2007		6/13/2007	
Time Sampled :			10:00		13:20		15:40		10:25	l
%Moisture :	19		21		21		21		20	į
Dilution Factor:	1.22		1.06		1.04		1.04		1.0	
Volatile Compound CRQL		Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Chichiorpdiffuoromethace 5.0					在海洋流					
Chloromethane 5.0		Maria Markan	Mary marchesta	क्षण्यास	STERRON NETSALAR	25 X W. 250	hotelenement visite	erovenski	aus en	**********
Will specific and the second s							经代现		Reflection	
Bromomethane 5.0	e deliver som sere deliver	Baranes.	mesterosaren	25 E-125 - F-25	FERNSTAN SENSONALINDES	NT COMPANY	Service Property Color	SPANIS (AV	postale in the design with the	e contract
Choralistic 1997	4								St. Harris	2
Trichlorofluoromethane 5.0		300F14R9		3003072	Transportation and the second and th	101:102:565E				262982
A Capital Discontinuo (Capital Capital Capita Capita Capita Capita Capita Capi										XX
1,1,2-Trichloro-1,2,2-trifluoroethane 5.0		#1925A		ATTE GIVE		7 2 5 7 12 12	e bewere			5.00 to 2.21
designed (1997)										
Carbon disulfide 5.0	E CONTRACTOR VINES	264: MA				72501E)E			200 H. E. S. E. S. Z. S.	858000 NO.
Methyl aceterie										
Methylene chloride 5.0		9 -2-2-4	3.7	В		CONTRACT		### TS####		
trens-1,2-Dichlorosthens 50		學等別			37-29美美黎	范蒙				型製工
Methyl tert-butyl ether 5.0	s sibih sasarén, n	Balt Control	ezeletetete	\$2501 8	111 8-11-12-12-12-13			reserve Terreserve		8882 8
1,1-Dichloroethane			经验证明的				地位现代的		第 5分的/公司	
cis-1,2-Dichloroethene 5.0 2-Butanene 10	70 an 1840	e i (Bereja	49 C.S. 3 C.S. 22	enersis	PROVEDENCES	PDF#	beiden etches	เสราสาร	ukstā ir samair	49. SS
,	Table 1 and 1 and 1 and 1	(e.g.) (e))		F1475	都能 逐渐强	1	(ARCON) (1988年) [2]	建三字	動作しても、少く対象	3000
the state of the s		# 10 AS	a over en	31313	SANTEN		ESSONE FOR			
Citierctoria 5.0 1,1,1-Trichloroethane 5.0		1936.98	Maria Confession	逐為職	en sperm	是外疆				经净额
Cardia and					7 					
Carbon tetrachloride 5.0		eran				光级漫		25-1-82		SEC.
Carbon terracinosce										
1,2-Dichloroethane 5.0				TO YES			6.1	J		Marie No.
14-000388		P								
Trichloroethene 5.0	Control of the second	SHOW SA	econtrate and a series	TO PROPERTY.	Made Green was not	N.C. BER	Trocker Control	ELECTRIC STREET	A TOPANION STATE	STORY CO
Methylis collexane			10.00	222						
1,2-Dichloropropane 5.0	en kirkuser i it eskiteen ja ja	er ye i nge	i de servicio de la Ricel	DOM: A SHIP	Look In To Sea Wiley (1994)	CDE (A) 453 A	than the contract of the second	Sec. 102.	promise for the Novelland	B 25 F C 1983
Bromodichleromethane 5.6.0			PRODUCT OF THE							建
cis-1,3-Dichloroproperie 5.0	rami mermetikkelori	merous a	addie is the 125 A	5 34 W 111	parent apply the entit	, yt. 9', µL €u	remande (p. 1974), #367	- Charles	partent of enterior and	V 34 42 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
4-Methyl-2-peritancsis		1								
Toluene 5.0	r at utstrauten 1900	- DRIES	er i projekti besik timbiliko	apreru Ta re T	alektrist samen illülle sekstelli.	a co series series	envertige to the second of	A-11 11 11 11 11 11 11 11 11 11 11 11 11	and the same of the state of th	45 TERUM
trane 1,3-Dichloroproperte 5.0						201				

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OPIONAL

Case #: 36456

SDG : C0007

Site : Lab. : MARKAY CHEMICALS

KΔ

Sample Number :		C0007		C0008		C0009		C0010		C0011	
Sampling Location :		SB1	į	SB2		SB3		SB4		SB5 .	
Field QC:				Dup. of C00	12						
Matrix :		Soil		Soil		Soil		Soil		Soil	
Units:		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :		6/12/2007		6/12/2007		6/1 <i>2/</i> 2007		6/12/2007		6/13/2007	
Time Sampled :		11:15		10:00		13:20		15:40		10:25	
%Moisture:		19		21		21		21		20	
Dilution Factor :		1.22		1.06		1.04		1.04		1.0	
Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1,1,2-Trichloroethane	5.0										
Tellautideoethere	. 6 0							W. Tr			
2-Hexanone	10										
Dibromechierometharre					9.4				72		
1,2-Dibromoethane	5.0										
Chlorobenzene	5.0										
Ethylbenzene	5.0										
o-Xylene	50.										
m,p-Xylene	5.0										
Styrene	5.0										
Bromoform	5.0						[]				[
lsopropyleerzene	5.0			3.75		100			2		
1,1,2,2-Tetrachioroethane	5.0										L
1.300thlorobenzene	5.0		反至								
1,4-Dichlorobenzene	5.0			and the second second second second					THE STREET		
12 Dichlorobet perie	5.0		200	双重量							建造
1,2-Dibromo-3-chloropropane	5.0							L			L
1.2.4-Trichlorobenzene	5.0										
1,2,3-Trichlorobenzene	5.0	-		1							

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) / [(100 - %Moisture) / 100]

Revised 09/99

DATA SUMMARY FORM: Volatiles

Page _9_ of _26_

Case #: 36456

SDG: C0007

Site:

MARKAY CHEMICALS

Lab.:

KAP

Sample Number :		C0012		C0013		C0014	_	C0015		C0016	
Sampling Location		SB6		SS1		SS2		SS3		SS4	
Field QC:		Dup. of C00	800								
Matrix:		Soil		Soil		Soil		Soil		Soil	
Units:		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :		6/12 / 2007		6/12/2007		6/12/2007		6/12/2007		6/12/2007	
Time Sampled :		10:00		11:30		12:40		13:20		14:00	
%Moisture :		20		11		16		20		14	
Dilution Factor :		1.22		1.35		1.14		1.22		1.19	
Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Diebulo-partico-ponetrates											
Chloromethane	5.0	1955 - Salah Baran (1965)	255 ASS		E455045	ANTE VINDERSTRASS			754255VH-78	EL SYTOS CHEROS AND CHEROS	-
Vinyt chilorida	36	南京主庆的			25					42.04.17	
Bromomethane	5.0	saya iya barataye s	.75,8,934	and 特殊化學與關於中華	riedowa Kriedowa	M ANGETTEN HAR		DEDVICTORS	ere en en en		Market S
Chloroethane	50	SAIGHT		的推测的	7						
Trichlorofluoromethane	5.0	医乳腺性分泌 不得感到	niiniigeta	eringalise araba	(Spacence)	intro orthographic	AESONE I	TAKE SECTION		ersals-panennasin	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1,1-Dichtoroettlene	5.0				的概念						
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	لاميد بالانتخاب	0.23199	ଅନୁସାର୍ଥରୁ ଅଧିକ୍ର ଅଧିକ୍ର ଆଧାରଣ ଜଣ୍ଡିକ	26 (Set core) 26 (Set core)	are suggested as	to 1965/Sets	e gate op 1975 - Gathaland	8 9% GR-7 88 6	APPENTY BUT BUT IN	
Acetorie	10	19	₿.								
Carbon disulfide	5.0	Bar Hulkon Waldayinin	000 26 309 0	service and a service and se	erenana. Terranan	N 1995 HARRISTS	er szere	raemonii - Saaturii	aren darien	የመርማማጭስ የአፋመ <u>ው</u> የ	
Methyl acetale		BANA WAR	it in			March 1998	24.5				
Methylene chloride	5.0		8-0780				272 283	4.6	B	1940 (Carport 134) 30	DE SE
pane 12-19 chargement at 1975				NEW WAY							
Methyl tert-butyl ether	5.0						E TEXTS DES			表现的影響的影響	EKRIK!
A Particular and Maria Company							72.4			20.7	
cis-1,2-Dichloroethene	5.0										E270
2-Billianone 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2				加达尼尔 西							
Bromochloromethane	5.0 5.0		PER SECTION		e par	SHARM SPI	X35			a re nderales	
Chloroform	CC 27 . C 4 1 4 7 2 3		的深刻	at the state of			松				
1,1,1-Trichloroethane	5.0 6.0		NG230	2005 COMPANY					IJ		
Cyclohebrane Carbon tetrachloride	5.0	医2017年1007年100	1	rs of Marie Training		李明 要用于沙特斯	an Angl		UJ		
Carbon tetrachionde Benzens	5.0	限的中央部署	the sign	colinate				WAS COLUMN	01		
1.2-Dichloroethane	5.0	ス・11.8 所(A)	*i*****		MAN N. TO		ET981船	era refere esta	74	14年7月11日本	
1,2-Dichioroethane 1,4-Diaxene	5.0 100								R.	e e e e e e e e e e e e e e e e e e e	•
Trichloroethene	5.0			機能はは、後の問題	ARCOZO		《春秋 》至3	redictive feitheilige	UJ	1408/2011/1993	
Methylogelchesess	3.0		1700		W 72						
1,2-Dichloropropane	5.0	2.48.43.643.434.34	accept to	5-6-10-10/10/1988	沙 森 (4)	MARINE ELECTIVE	UNATED	A VERY LENGTH	UJ		建建规
Britistier Accepted at 2											
cis-1,3-Dichloropropene	5.0	ALACTE MARKET			485	KT PARK BURE			UJ		
4-Methy-2-pentareste	10					-H-2-W-68-48					700
Toluene	5.0	SKING TOWNS AND			17.59 X-25.		*223.8%	SERVICE STATE	UJ MENNE	证明的证明的证明	"经验 "
trens-1,3-Diction property	5.0										
HELD LOCATION OF THE STATE OF T	100		100	建筑在北京教育					3		

DATA SUMMARY FORM: Volatiles

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Case #: 36456

SDG : C0007

Site : Lab. : MARKAY CHEMICALS

: KAP

Sample Number :		C0012		C0013		C0014		C0015		C0016	
Sampling Location :		SB6		SS1		SS2		SS3		SS4	
Field QC:		Dup. of C00	80								
Matrix :		Scil		Soil		Soil		Soil		Soil	
Units:		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :		6/12 / 2007		6/12/2007		6/12/2007		6/12/2007		6/12/2007	
Time Sampled :		10:00		11:30		12:40		13:20		14:00	
%Moisture :		20		11		16		20		14	
Dilution Factor :		1.22		1.35		1.14		1.22		1.19	
Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1,1,2-Trichloroethane	5.0	land John Steel W	General Control	Med A Reflected Above	Ma 2000	i pagana a kofilisi.	77. 16F5	area of as an electrical	UJ	SECTION AND WATER THE	euen ve
Tetrachloroethene	5.0		-1,50.50		E4X			200	60		1
2-Hexanone	10	i Sada Sadagerapan in San Asia	SNA'S 550	ons o constructo	ፕሮ-16 <u>.</u> ናን፡	Parkai Stratichecheasch	: Treetand	istaan kistoon ka kisto	UJ	eankoolis isidaan	8025-85 <u>-04</u>
Dibromochloromethane	510	是特别性的			经基		新兴		O.		
1,2-Dibromoethane	5.0	ты этине такие	الاردادية الاردادية	ore as a state in the	said where	eruser este e techeros	ii to considera	BESKER TO THE BAR BARRET FORE	UJ	a artininga astronomikasas	zne kula
Chloroberzene .	60 /	MATERIAL									
Ethylbenzene	5.0	Les versionistateles e	2 (3.5 4)	ing and the restrict of the state of	20 E 7 % 70	CONTRACTOR NOTION FROM	PER DATE	andre et en	UJ	and the second control of the second control	anns an
o-Xylens	5.0						12.7				
m,p-Xylene	5.0	na ann an	na energ	n - mainthair an	- 120 No.	rometa nicho una menet	colle mass:	renarii da samanare e	UJ	M to the town of the second	
Stylene 7.	5.0		是是		经证据						
Bromoform	5.0	and otherwise office	1004-C100-1		UJ	THE CONTRACTOR OF THE CONTRACTOR	UJ	KOPINI PROMINI NA SANAPARA	UJ	Afternation of the state of the	UJ
(sopropybenouple)	750										
1,1,2,2-Tetrachloroethane	5.0	ren Automotive State (Marie Marie Automotive Automotive State Automotive Auto	onen a e	a afraige de l'actual de l'Alland (Alland	****	Service and the last contribution	5727\YZZ #78VK	CONTRACTOR CANADA	IJ	The language of	. 2775/7
) G-Dichlorbourgatio	59					是例识				26.79多量	W.
1,4-Dichlorobenzene	5.0	The same of the sa	inan same	AND AND THE COLUMN AND AND AND	เกา	Maries ANNO C. S. Trans	UJ	6.9	J	referred to the Control	UJ
1,2-Dichloroberzerie	80				300		U.	表 多多 类	ju.		ED.
1,2-Dibromo-3-chloropropane	5.0				υJ		ນຸ		υJ		เกา
1,2,4-Trichloroberizene	.5.0		第 第		U.	等的是	w.		u.	烈马 斯里	ŢŲ.
1,2,3-Trichlorobenzene	_5.0				IJ		3		เม		บม

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) / [(100 - %Moisture) / 100]

Revised 09/99

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-URIGINAL

Case #: 36456

SDG : C0007

Site :

MARKAY CHEMICALS

Lab. :

KAP

Sample Number :	-	C0017		C0018RE		C0019		C0020		C0021	
Sampling Location:		S S 5		SS6		SS7		SS8		SS9	
Field QC:		ĺ				ĺ		ĺ			
Matrix:		Soil		Soil		Soil		Soil		Soil	
Units:	•	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :		6/12/2007		6/13/2007		6/12/2007		6/12/2007		6/12/2007	
Time Sampled :		15:00		08:45	i	09:45		10:10		09:30	
%Moisture:		24		48		45		37		47	
Dilution Factor:		1.22		1.52		1.19		1.32		1.52	
Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichloroeffluorométriane	-50	以 例如原				2.5			1.30		
Chloromethane	5.0		ĺ		[]				f	Í	
Vinyl chadde	5.0		约00万 数据的	3. 4				**************************************	10015		恢
Bromomethane	5.0				:		L		İ		.
Chloresthans	3.00										
Trichlorofluoromethane	5.0				.			_			
t 4-Dich larcettene	ALC:										
1,1,2-Trichloro-1,2,2-triffuoroethane	5.0				İ						
Acetone						5 T 20					10
Carbon disulfide	5.0										
Methyl scelate	50					# 82	D. P				X.,
Methylene chloride	5.0				l		İ			16	В
trane-1,2-Dichlorbenene	356		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1							to the	
Methyl tert-butyl ether	5.0		l					-		[
1,1-Dichlorcethane	50							经是 的			*
cis-1,2-Dichloroethene	5.0						İ			<u> </u>	1
2-Belanone	. jo.					连终,太楚			先		
Bromochloromethane	5.0										
Chloroform	60		政策			2 3 x 7 3			2		
1,1,1-Trichloroethane	5.0				L			and the EECOTE CO. Column			L
Dyckhenene	50										
Carbon tetrachloride	5.0	TO ENGLISH SERVICE	Gen Task	MANUFICURE STATE OF THE STATE OF	259457372	Kanada de Kanada da kanada kanada kanada kanada kanada kanada kanada kanada kanada kanada kanada kanada kanada	70.0172/5/200	THE PROPERTY AND THE PROPERTY AND	RECOVERED NO.	TOTAL COMMISSION OF THE	
Straine											
1,2-Dichloroethane	5.0	CHESTALISM CHARGOLIANS		er mass and ensured makers		enconsulation of changes and		Lamps of Company of Company of Company	A WOOD A STOLE	CARLOTTERED SAME TO SERVE	
(#-Djoydine	100										R
Trichloroethene	5.0		L	20	K						
Methylistensone J. 1888	W 500					建 新公里					
1,2-Dichloropropane	5.0	manufacti centre		CW.TV. WYTVERSUNG) 	CONCURRENCE ACCIONAL		Committee Williams		te attended to the second	
Bronociationstratie	50										
cis-1,3-Dichloropropene	5.0							No. ab to 2007 The table of the contraction			<u></u>
4-Methyl-2-pentanous	707	学 的第	新教								
Toluene	5.0	The section of the se	.	IN CORP. MALTERIA CO. ON.	L	harron empirioris. Entresis		CALIFORNIA PRODUCTION	Indiana di Con		
trans-1,3-Didfilorapropents	5.0		达沙						100		

DATA SUMMARY FORM: Volatiles

Page __12__ of __26__

Case #: 36456

SDG: C0007

Site:

MARKAY CHEMICALS

Lab :

KAP

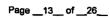
Sample Number :	-	C0017		C0018RE		C0019		C0020	,	C0021	
Sampling Location :		SS5		SS6		SS7		SS8		SS9	
Field QC:				ľ		i					
Matrix:		Soil .		Soil		Soil		Soil		Soil	
Units:		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :		6/12/2007		6/13/2007		6/12/2007		6/12/2007		6/12/2007	
Time Sampled :		15:00		08:45		09:45		10:10		09:30	
%Moisture :		24		48		45		37		47	
Dilution Factor :		1.22		1.52		1.19		1.32		1.52	
Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1,1,2-Trichloroethane	5.0		7 . 2 . 24	n Library and Succession	Lawrence Mari	and the same of the same	- mar (1986)	S. em attrales significad	and on the same	n e meralenak	e en min
Tetrachiomethene	80	第76年	1.7	45							
2-Hexanone	10	and the second second second				maka Wakana (a mana ya			en / 100 a Torre		
Dibromechipicmentane	50										
1,2-Dibromoethane	5.0				**********	natural carrier and a second		DOMESTICATE LANCE NA POW	Officer Service		
Chicobenzene											
Ethylbenzene	5.0		L		number of street	era an estado de manda estado estado estado estado estado estado estado estado estado estado estado estado est					
o-Xylene							3.3				
m,p-Хуlепе	5.0	PERSONAL PROPERTY AND ADDRESS OF THE PERSONAL PR	a N. 17 Mars 1	N. H	A D. Brit. Marks. Carbo	ONE SEASON OF THE MAKE ME	# PET A 1 VS - 1797	Objective by the state of	Ti day to the total	ta o tarte e save karmani	ar but a s
Styrene											
Bromoform	5.0	******************************	UJ	comment account to the comment	UJ	ANT STREAM. THE MAN	UJ .	THE STATE OF THE S	IJ	Date: 1-Alexandres and	
leopropylberzene	50								17.		海岸
1,1,2,2-Tetrachloroethane	5.0	mænowinin der d	restation w	. The section of the section is the	74 XAM 77	Caz a cures invitien	recurrent	NO CONTRACTOR OF A STATE	talam, teran	e nasaasaa ka ka ka ka ka ka ka ka ka ka ka ka k	NOTE TO A
1,3-Dicfilorobenzene	50		U.						W.		A SE
1,4-Dichlorobenzene	5.0	make in the control of the control of	IJ	Committee of the State Conference of	UJ	north of electrosis, v	UJ	n a physical property of the control	υJ	trough theretics to be a mount	** . ******
1,2-Dicfriorobenzene	5.0		M.		W		W.		w		A CONTRACTOR
1,2-Dibromo-3-chloropropane	5.0	I TOO BOOK ASIGN S OF S	UJ	construction of the state of	UJ	THE STREET STREET	บป	Program (April 1994)	UJ	CHARLES OF BEINESS OF SHIPMAN	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
1,2,4-Trichlorobenzeme	5.0	AND A	UI.		J.F.) III		60		
1,2,3-Trichlorobenzene	5.0		IJ		IJ		IJ		ນ		

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) / [(100 - %Moisture) / 100]

Revised 09/99



Case #: 36456

SDG : C0007

Site : Lab. : MARKAY CHEMICALS

KAP

Sample Number : Sampling Location : Field QC :		C0022 SS10		C0023		C0025					
• -		1 9910		SS11		SS13		[
1 1010 40 .		Dup. of C00	123	Dup. of C00	122	3313				ĺ	
Matrix:		Soil	25	Soil		Soil				Ī	-
Units:		ug/Kg		ug/Kg		ug/Kg					
Date Sampled :		6/12/2007		6/12/2007		6/12/2007					
Time Sampled :		15:50		15:50		10:40					ļ
%Moisture :		8		10.00		14					
Dilution Factor :		1.79		1.92		0.96					
Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dishloredifluoromethene	600	S. 17.27 FEB.				Section 1		£ 14.30° 75°			
Chloromethane	5.0				2.7	1 5.6 - 1.5 . 1.5 . 1.2 . 1.2 . 1.2		24.4.4.2.6.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2	WF (15,3°)	a the Control of the control	P-2510 (F1 (F1)
Vinyl chiloride	50										建
Bromomethane	5.0										
Chloroethane	5.0		位数								
Trichlorofluoromethane	5.0										
1,1-Dichippethene											
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0		WEEK LAND	Company of the same of the sam		**************************************	en e e e e	CL BERGERMONE AN LINE ACCOUNTS		Contract of the Contract of	
ecelore 5				學等表現		基础					
Carbon disulfide	5.0	Name (1996 of the Allegar (1996	Sectors (144)	SPREASE CONTRACTOR	ean a sa	entalisa (Procunt or topse	erente actua	መስያት፤ ማጀመ ተ ልማውጽ (ት 1)	Septime in	RE-Disambles assumes	02/20 X 200
Methylaceteté	+.0					"学生"中国	學		4		
Methylene chloride	5.0	11	В	12	B	4.2	B estanti	census a la la coman	ما در د المراجع	SMAN STOLL OF 199	kana kana
trans-1,2-Dichloroethene	5.0		777	(17) 시간 승규						第25 次次数	
Methyl tert-butyl ether 1.1-Dichloroethere	5.0	er i di	N. E. W	ing the market	Darke.	हेक्ट्रा १ का अ ल् रा	97. 901a	er Kanstron caneda	Note the set	Washington	65.41 3.34
-,	5.0		M 27-0		指标的		地域是		版符号		
cis-1,2-Dichloroethene 2-Butanone	5.0 10		arryst.	errettossings	Mar Gay	Marketik (A	K19039		6878627A	erang makanan	enterior.
Bromochloromethane	5.0	969 A. Colle 19.1		OF STARL THE	400年20	BRATE AND S	e Harris		MEG.		TAGE.
Chloroform	5.0		erze:								
1,1,1-Trichloroethane	5.0		ACCEPTANT.	Day to State of the	CENTED.				A - 3-12		34165 B
Cyclonexane	5.0	#14.TY					7		H.O		
Carbon tetrachloride	5.0	数さむいるとものがあ		VIII CHEANNEACH	Sept. Cont.	AND THE PARTY OF T	ALL VALUE		SKH BO	ALTERNATION OF	
Beirzene										****	
1,2-Dichloroethane	5.0	RESIDENCE NAME OF THE PERSON OF THE	PRINCE CHE CO	MENT IN DESCRIPTION	122-049-08C	AT THE PARTY OF TH	PHILE TO THE	व्यक्तान सम्बन्धः स्कान्यक्रम	e market	po trenens nuevas	gestige)
14 December 2	100		R 3								Maria de la Carta
Trichloroethene	5.0	#100016 1 (1000 T 100 T 100 T 100 T	Manager stage	Profit (*) (Colleges of the Aria	EMP TO TA	Description (2) 2 2 22 10 70	140140000	NAME OF THE PARTY OF THE PARTY.	(0 = 1, 20 (43)	(Ballander Service No. 7)	(refer visito)
Metros dote ana	26.6										新加油
1,2-Dichloropropane	5.0			DE-1110 A.S. CANDON	- 41. Head Told	raba applead .Ce		par-6:: 2013:2044315	PANIS PR	rangement actions	all Multiple
Bromodicfilorcimetriene	10						7.00				
cis-1,3-Dichloropropene	5.0								THE PERSON NAMED IN	; a ma : 2 f Min designist	AND ROOM OF THE
4-Methyl-2-pentanone	10		7								
Toluene	5.0								,		-as-invaping
trane-1,3-Dk:Horopropens	5.0				i eng						

OPPOMA

DATA SUMMARY FORM: Volatiles

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ORIGINIA,

Case #: 36456

SDG : C0007

Site :

MARKAY CHEMICALS

Lab.:

KAP

Sample Number :		C0022		C0023		C0025					
Sampling Location :		SS10		SS11		SS13					
Field QC:		Dup. of C00	23	Dup. of C00	22]					1
Matrix:		Soil		Soil		Soil				ĺ	
Units:		ug/Kg		ug/Kg		ug/Kg					
Date Sampled :		6/12/2007		6/12/2007		6/12/2007					
Time Sampled :		15:50		15:50		10:40				ľ	
%Moisture :		8		10		14					
Dilution Factor :		1.79		1.92		0.96					
Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1,1,2-Trichloroethane	5.0	numerical descriptions for	01940A626	elekanera erre	eranismi.	PLANTAGE CLASSIC	10 OV.	Same of a Carlo Harrison	anda esta	an noome sunocessiones	20020000
Tetal operation	50	13114	1		A.W					37.77	
2-Hexanone	10	0.5273-b36-00 X 56-732	23.78.76.1	eroman escapia	ाद्यकश्रद्ध		Zene society	PRICARIO PROGRAMA	MANAGE STATES	eran sanamatika:	ogwales.
Edition Company of the Company of th	207		70								ELLI
1,2-Dibromoethane	5.0	no especialis	BARRES ECO	SEGMENT OF THE SEGMENT	arenes)	Skylene ingg	energy of	CHINA CHINA CHINA CHINA CHINA CHINA CHINA CHINA CHINA CHINA CHINA CHINA CHINA CHINA CHINA CHINA CHINA CHINA CHI	er lagger est	Selection college	surence.
Crieropaczine	50	展示数			建筑美	W. CLARK			#3% #		AL H
Ethylbenzene	5.0 5.0	ncelienes	3222	1200 ostalija		1905/1908/201 35/49		rasalandi verekan	noto kalin	Reconstruction	Taken.
o-Xylane							25,000				建铁
m.p-Xylene Styrene	5.0 5.0		1.44.41.								aren e
	5.0		\$643	以 合于4年338	: FASC				基件的包含		***
Bromoform Isopropylbertzeite	50	n Profesia					nere				
1,1,2,2-Tetrachloroethane	5.0	表现的表现的是主要		ALCOHOL:	**************************************	\$10.40 NASO		- PARTINI		建一种温度	新数型企
1,3-Dichlorobenzene	5.0		140 A	Table 1			Property Pro				
1,4-Dichlorobenzene	5.0	(1) 10 10 10 10 10 10 10 10 10 10 10 10 10		AND STATES AND ASSESSED.	es esta	建筑成为各种。	<i>न्येक्ट्रेस</i>				1. S. C. C. C. C. C. C. C. C. C. C. C. C. C.
1,3-Dichlorobenzere	5.0		\$ E		724.U			Professional Profe			No.
1,2-Dibromo-3-chloropropane	5.0	別の学習代で多点。	এ িতেওঁদীন	P. 经有益的 (19)	USB-A	CONTRACTOR OF STATES	1. F. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	E. E. E. E. E. E. E. E. E. E. E. E. E. E	CANTELL CO		स्थापर स्था
1.Z4 Trichlordberzeng	5.0		TO THE				蒙亚维			MAN AND	
1,2,3-Trichlorobenzene	5.0	an es established the s	green k	904 17(3657) / NA	edir y	ian animaran 1891 (1991)	ent. (\$1, 16)	PR 1794 - 32,435 (A)	Park at 100	新 代表 5.2 体积交换数	20% 11 AM

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) / [(100 - %Moisture) / 100]

Revised 09/99

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CHOMPA

Case #: 36456

SDG : C0001

MARKAY CHEMICALS

Number of Water Samples: 7

Number of Soil Samples: 0

Site :

KAP

C0003 Sample Number : C0001 C0004 C0005 C0006 GW1 GW3 GW4 GW5 GW6 Sampling Location : Field QC: Dup. of C0006 Dup. of C0005 Matrix: Water Water Water Water Water ug/L Units: ua/L ua/L ug/L ua/L 6/12/2007 6/12/2007 6/13/2007 6/13/2007 6/13/2007 Date Sampled : Time Sampled: 14:00 09:00 11:00 13:00 11:00 1.0 / 8.0 1.0 / 20 1.0 / 10 Dilution Factor: 1.0 / 100 1.0 / 4.0 Semivolatile Compound CRQL Result Flag Result Flag Flag Flag Flag Result Result Result Berzaldenge Pheno! 5.0 Bis(2-chloroethyl)ether 5.0 2-Chlorophenol 5.0 2-Methylphenol 5.0 2,2'-Oxybis(1-chloropropane) 5.0 Acetophenone 5.0 4-Methylphenol 5.0 M-Nitroso-di-n-propylamine 5.0 Hexachloroethane 5.0 Nitrobenzarie 50 Isophorone 5.0 2-Mirephenol. 5.0 2,4-Dimethylphenol 5.0 Bis(2-chloroethoxy) methane 50 UL UL R 2,4-Dichlorophenol 5.0 Naphthalene 50 4-Chloroaniline 5.0 ÜŁ 60 Hexachlorobutadione Caprolactam 5.0 96 + 1300 + 280 + 830 + 430 + ÜĿ ·UL **\$** 4-Chloro-3-methylphenol 5.0 2-Methylnaphthalene 5.0 Hexachlorocycloperitadiene 5.0 UL UL 2.4.6-Trichlorophenol **大**然 UL. 2,4,5-Trichlorophenol 5.0 1,1'-Biphenyl 5.0 5.0 2-Chloronaphthalene 2-Nitroaniline 10 Dimethylphihalate 50 2,6-Dinitrotoluene 5.0 Acenephthylene 60

10

3-Nitroaniline

[&]quot;+" = Results are reported from diluted analyses.

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Case #: 36456

SDG : C0001

Site:

MARKAY CHEMICALS

Lab.: KAP

Sample Number :		C0001		C0003		C0004		C0005		C0006	
Sampling Location :		GW1		GW3		GW4		GW5		GW6	
Field QC:						1		Dup. of COO	006	Dup. of C00	005
Matrix :		Water		Water		Water		Water		Water	
Units:		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	1	6/12/2007		6/12/2007		6/13/2007		6/13/2007		6/13/2007	·
Time Sampled :		13:00		14:00	į	09:00		11:00		11:00	i
Dilution Factor :		1.0 / 4.0		1.0 / 100		1.0 / 8.0		1.0 / 20		1.0 / 10	
Semivolatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	10								· .		
4-Nitrophienos	10								X X		
Dibenzofuran	5.0										
2.4-Dicitrotówane	5.0	第23 第			大约						1000
Diethylphthalate	5.0						L				
Fluorene	5.0	基款 台灣									
4-Chlorophenyl-phenylether	5.0										
4-Nitroaniline	10		為影		营资						
4,6-Dinitro-2-methylphenol	10										
N-Nitresociphenylamine	5 0										
1,2,4,5-Tetrachlorobenzene	5.0				R		UL				UL
4-BromophenyEphenylether	150										
*Hexachlorobenzene	5.0	,									
Amorina	50										
*Pentachiorophenol	10				R	l	UL				UL
Phenanthress	5.0				78 A						
Anthracene	5.0									.	
Carbazela	5.0	**** ***			3 44 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4		2				45.
Di-n-butylphthalate	5.0									L	l
Fluorenthene	5.0		13 E	200	OL.		OL.		UE.		702
Pyrene	5.0	and the second second		(Park No. Super Co. Co.	UL	The supplement of the suppleme	UL	attes to a year to see.	UL	ng Kabupatan ng Kadil I - Maranes	UL
Butylbenzylphthelate	50				2	A*2131.3		Marine S	7.0		建設
3,3'-Dichlorobenzidine	5.0	a Strangeliebe were when	nuarente.	Shorter and Address the A	1567.7° 47.	Normal Angles Control of the Control	Det State	iriya sa minayese salahar dan	Te 307 ber	CONTINUE CON	
Benzo(a)anthracene	750				1				100		
Chrysene	5.0	nann mar earl e de l'hann a	171.000043795	NOTES PRODUCTIONS	UL	NAMES OF THE PARTY AND	UL	THE THE SENS THE TANK	UL	CONCORDE TENOMO	UL
Bis(2-athylhexyi)phthalate	5.0	的"物理"					230.0				
Di-n-octylphthalate	5.0	nanganaan sa Ulikaa.	t#Otan = /	Harris Dankonsa arrana		Linguistry observable south		AND SECURITION OF THE PERSON O		AND DESCRIPTION OF THE PARTY.	
Benzz(b)flgcgaffnene		172 A. A. L.					DE.				J.
Benzo(k)fluoranthene	5.0	, ~\ \\\	in to Are	AND THE PARTY OF THE PROPERTY OF	CHINE SALES		UL	, that of the property and the	UL	SOLENS THE LANGE CONTRACTOR	UL
Benza(a)pyrene	6.0						y.		191		OL.
indeno(1,2,3-cd)pyrene	5.0	, and to filling programmer above to	A.C.M.C.	large of the second second		Constitution resistants	UL	strage to be appearable	UL	estate and state (united as	UL
Dibenzo(a,h)anthracerte	5.0		7				Ù.		9.		W.
Benzo(g,h,i)perylene	5.0					and one of the same	UL	amerikan menan	UL	an anni a gara (piper) incama	UL
2,3,4,6-Tetrachiocoffetiol	5.0				Ŕ		TO S		黎筆	4.45	the

CRQL = Contract Required Quantitation Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor)

Revised 09/99

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Case #: 36456

SDG : C0001

Site : Leb. : MARKAY CHEMICALS

KAP

Sample Number :		C0027		C0028				<u> </u>		Γ	
Sampling Location :		SW2		SW3							
Field QC:		Rinsate Bla	nk	Rinsate Bla	nk						
Matrix:		Water		Water		1				ĺ	
Units:		ug/L		ug/L				l			
Date Sampled :		6/12/2007		6/12/2007						Ĭ	
Time Sampled :		14:30		12:00		1					
Dilution Factor :		1.0		1.0						<u> </u>	
Semivolatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	5.0	ele e e e e e e e e e e e e e e e e e e	. 3/13/34					Co			
Phenol	5.6	公 大师公共,汉		30 2 M. A. A.					政策		
Bis(2-chloroethyl)ether	5.0	urties increasing to	6 ATT TH	er, m i raman a arma sama	. 17764-0487	TOWER STREET OF THE PERSONS AS	ETEN OF	alen a versus and an extensi	ana diseas	*****	- Fringelia
2-Chlorophenol	5.0										
2-Methylphenol	5.0	No. 8 (Cal. 1981) Section 679	27 .5/2000	to answering recover	course seed	entratical property con	ge group open	editar iski pentaliya conse	10-150A/A00	CONTROL CONTROL CONTROL CONTROL	-21/5522
2,2'-Oxybis(1-chloropropane)	5.0	是是是不同		是可以相談			13.				
Acetophenone	5.0	SE NEITH SPAN	arteres est	TO PARTY PROPERTY	CRECK!	1444 SAS ASSESSED		THE STREET	el arter a		HUHUH L
4-Methylphenel	5.0	思想来到秦	認動		100		A V.	是學學			
N-Nitroso-di-n-propylamine	5.0	Sacra an Light Land	i antonia	landing (1984) in the entire	71.25.25% (1.15.25%)		2-26-27	nga an managan	建分割成果的	kattisasen kuntaksi	2.30-3023 2.30-3023
Hexachloip@frafie	50.				語物類			MANAGE CA		"智力"。 第1	
Nitrobenzene	5.0	Secretary and	100 to 10	regions were	COSA (CAR		Tueren	eriorien austa	eridot 145		ENTERNA .
Boptogane Market	.50	用新士工 理									些物
2-Nitrophenol	5.0		Carrie and		renesik			18 18 18 19 26 12 12 25 12 E	Likarin	花园 英色 2000 克拉斯	erave.
24-Dimethylchenol	.50		JE SA		ice :	mental a			XI EF		
Bis(2-chloroethoxy)methane	5.0		5-3-5 3 55		o care	*******	Here Car	。 第 第 第 第 第 第 第 第 第 第 第 第 第 第 第 第 第 第	Kiitti Kii		1009UN
2.4 Dishlorophenol	50	REPORT OF THE PARTY	漢語程	建 於時間 經濟			程で認	并约为			
Naphthalene 4-Chloroaniline	5.0 5.0		(1052°S	SE CONTROL	TOW.				100000		38.55
Hexachlorobutadiene	5.0		14.54.54	ATTAMATERATE			游戏结构	在此外的特殊			Jan G
The second of th	5.0		carrier matical	2.8	1			DOTE THE SERVICE	的影响	X417-1-12	RAME
4-Chloro-3-methylphenol	5.0	in of the control	(特別的)	F10000 41400	is Marida.	arter errezz	W. L. B. V.	的分离。在2000年	್ಷಕ್ಟ		A SEC.
2-Methylmaphthalene	5.0	深铁煤罐	(海)		100						
Hexachlorocyclopentadiene	5.0	Print Company	Persistant.	tta Op. 1 Sirk ⊅	K#** * * *	N. 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	An Olavi	1990年的建设第3	BOCK!	PAR VANCATIONS	न्त्रप्रहास स
2.4,6-Trichicrophene	5.0							\$162 7 45		WAY EVEN	
2,4,5-Trichlorophenol	5.0	anata ya ya sa	marine.	\$475.46 24F 1755 1	Early 20	2. 10 11 11 11 11 11 11 11 11 11 11 11 11	0.4897948	s de la servación de la servac	17 W. 15 ST. 15		12 15 12
1,120 pressy	fo.										
2-Chloronaphthalene	5.0	2.20 · 12 · 30 · 30 · 30 · 30 · 30 · 30 · 30 · 3		and the second second	W.T. BOOK	www.consucraterate	eriter in 1813 de la	m44.0.1 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	EURSS 4288	AND CONTROL OF COME	ameter ett
2 Nilroduline	10							A 2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -			
Dimethylphthalate	5.0		MISTI E	A CONTENSE	- 2 2 0 TOS	AND THE PROPERTY AND THE	SALES S	and the second translation	aradelii	ANTERSTREAM AND ANTERNAL	ST35.17.1678
2.8-Dinfrotollene											
Acenaphthylene	5.0	CHECKS SHANGSHEET TO	in september	CHANNEL STREET, N.	PCSC MASS	LACTOR ENGLISH TO VISIONIE	acres.	TO MEN PER POWER PORTS	and with	* CONTRACTOR	:VISMETER
3-Nitroentine	10		741						The second	104 8 SVZ	3.4
Acenaphthene	5.0	with a Hillia code Confidence	1	area, marrieda	N SECTIONS	The free parts which had being the	Teasup.	and this publication of the American Strategics	P * ***; **;	isma im sentemporambilità.	642.5.8
										· · · · · · · · · · · · · · · · · · ·	



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Case #: 36456

SDG: C0001

Site :

MARKAY CHEMICALS

Lab.:

KAP

Sample Number :		C0027		C0028		<u> </u>					
Sampling Location :		SW2		SW3							
Field QC:		Rinsate Bla		Rinsate Bla	n.L	ľ					
Matrix:		Water	IIK.	Water	IIK					ļ	
Units:		,		ug/L							
Date Sampled :		ug/L 6/12/2007		6/12/2007		1					
Time Sampled:		14:30		12:00		1				1	
Dilution Factor :		1.0		1.0							
Semivolatile Compound	CRQL	Result	Floo		Flag	Result	Flag	Result	Fleg	Result	Flag
-2.4 Dinitrophenol	3 101	U. G. TAIL		THOSOIC STATE OF THE STATE OF T	201/2	TOO OIL		Nosun		T Cooli	
4-Nitrophenol	10	STREET, STREET, STREET,	i.Hereat	A-SPECIFICATION OF	nano do la		and the	TOTAL SANGE STATE SANGES	Sept. Comme		22.303.4
Dibergolaran	8.0			4517 .78 79							
2.4-Dinitrotoluene	5.0	(2) (2) (2) (2) (2) (2) (2) (2) (2) (2)	(AB), SABANT (I	DESCRIPTION OF THE	22272	andre Park Polisi	arthmet we	A MANUAL POLICY OF CONTROL OF	MESOE VAL	graditation and the same	Parameter.
Diety/philiplate	50									7.77	物品
Fluorene	5.0	CARLON SULPARED STATE OF	F-1961-	(2) 付えたようなよりをおりる	a*. Telesion	een water alles	Section Company	is Distributed in the state of the con-	to the second	NAMES OF THE PARTY.	- 1995 SERVE
4-Chlorophery college (eller					444						
4-Nitroaniline	10	STATE STATE STATE AND THE	2556474459 6	abber Market and an entering	approximate.	e in Calminetta e a interna	Me Forest	en com in an analyse for each	ik, a raks gigin (d	HELLEN IN LINEAR INC.	Patrician (Ae
4.6-Delifib-2 methylphenel	10						* 17				
N-Nitrosodiphenylamine	5.0	T. ITTALISM SHEET STORY		Destriction and the	. (3.3. 2.3.	o mai in actividade ac		STACK TO SELECT THE	Trans (A bith advance	ASSTRACTOR INVESTIGATION	EC25E18
123 Edition Links (120 Edition 120											
4-Bromophenyl-phenylether	5.0	ath investor residence		ite trace designation		E-01/20,000 V-10/20,000			R.E.C. ASE	AUT. E. C. 3. 7 14 140	
"Hexaciliarobalizatia"	450					X Comment					
Atrazine	5.0	Translate Carona	,	N.S.W. Like States			371.13.34			W. S. D. C. C. C. C. C. C. C. C. C. C. C. C. C.	
*Pentechlorophenol	10		污泥						发展		
Phenanthrene	5.0							,			
Anthracene	50				學學				频源		
Carbazole	5.0										
Di-n-butylphthalate	5.0				e o		# PC-1				
Fluoranthene	5.0	nome a substitution de	· varno m č	COMPANSOR GUESTA	razzer e.c.	TO THE SECOND SE	THE REAL PRINTS	r (Mr.Jone Jr., 18—110), apart	ETRAN (AN)		
Pyrone	50							这 然分子			
Butylbenzylphthalate	5.0		LANGE OF ART	TERMANTON MOTOR	CONTRACTOR OF THE PARTY OF THE	ASSET RESERVEDANCES PROPERTY AND ASSET	an an an an an an an an an an an an an a	Later to the state of	24444	STORES HAS COLD ROWSE	n everane
to a ble his robertaine.											
Benzo(a)anthracene	5.0	THE VIOLENCE PROCES		OWNERS WERE THE TAXABLE PROPERTY.	957 T. 104	00.000 00-200000	TOTAL TO	Territorio de la companya de la companya de la companya de la companya de la companya de la companya de la comp	FERENESE	MARIAN INCOMESSA	
Chrysine	0.0										
Bis(2-ethylhexyl)phthalate	5.0	grafic transport transport to the contract the	resa vietrasa	uma ratroate (ant	10-744V-70		754072773	THE STREET	ELVECTOR/SBCEN	**************************************	
Di-n-octyphthalate	30	第27 第			19						
Benzo(b)fluoranthene	5.0	Street, France in the	a saparawa	ans and east officered a	reer at 12.00		000000000	-	epstrome	EDENIS ON SOUTH FREE	Name (See
Benzo(k) iluorantherie	5.0	等的學學多					1.0				
Benzo(a)pyrene	5.0	an an an a	y. 1844	10 mg (10 mg 194	5(5),122.	and the second	Spirov sat	elle entropia	ggaig sa tata	austenium au en	niprincipe :
Indeno(1,2,3-cd)pyrene	5.0								列		22
Dibenzo(a,h)anthracene	5.0	and the same		5 m 1 25 W 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	de ne	korta eri eren	una en	eriographosta arco	አስፈዋት አንድነብ	ngana ayaanka	gallen a
Benzo(g.h,i)perylene	5.0		₹1 J			MARINE	MAN,				
2,3,4,6-Tetrachlorophenol	5.0			<u> </u>	<u> </u>	<u> </u>	<u> </u>	L	<u> </u>		ŀ

CRQL = Contract Required Quantitation Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor)

Revised 09/99

Page __19__ of __26__

Case #: 36458

SDG : C0007

Site : Lab. : MARKAY CHEMICALS

KAP

Number of Soil Samples: 18

Number of Water Samples: 0

Sample Number :		C0007	-	C0008		C0009		C0010		C0011	
Sampling Location :	ļ	SB1		SB2		SB3		SB4		SB5	
Field QC		,		Dup. of C00)12						
Matrix:		Soil		Soil		Soil		Soil		Soil	
Units :		υα/Κα		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	i	6/12/2007		6/12/2007		6/12/2007		6/12/2007		6/13/2007	
Time Sampled :		11:15		10:00		13:20		15:40		10:25	
%Moisture :		19		21		21		21		20	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
Semivolatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Resuit	Flag	Result	Flag
Benzaldeflyde	174										
Phenoi	170										
Bis(2-tritoroethy()ether	170					123					
2-Chlorophenol	170										
2-Methylprend:											
2,2'-Oxybis(1-chloropropane)	170										
Acetophenous									建建		
4-Methylphenol	170					Edition on the advisor of				The Part of the Pa	
- Cymocal sanovante Str.	NZ E								建疆		
Hexachioroethane	170		30.67 93 7	tra eret Z. vza stanes	THE STREET	STEWNER AND AND AND AND AND AND AND AND AND AND	Province account	Organiza service per particolor	V	TOTAL CARL CONTROL OF THE	
Nintelliterie*			S								
Isophorone	170	DELAGRESTATION TO SE	Control 100	DANESSAN MARKETT SERVICE	100 (S-20) L3	and Francis Control	Market And	Character and Dread engineers	anandra, drikas		5576W054
2-Niliopolinol	***										
2,4-Dimethylphenol	170	rol (SEathface)	en: exisci	বালা <i>াশা</i> ভারতার জি	erestrano	AND SECURITY OF THE PARTY OF TH	- ANNOTES	en en en en en en en en en en en en en e	ententente	and the second second	ensurana.
Bis(2-cht/roethoxy)methate	170		78 7 A . 104				可認				
2,4-Dichlorophenol	170	may make make make make	(notice)	rang Jawa 2000	e estrat	Berness (Turkset)	egygaritates	in and the same of	ikoka useri	THE SHOW THE PERSON	LOCK TA
Naphthalene	170	Carry VA		(1) 10 10 10 10 10 10 10 10 10 10 10 10 10							
4-Chloroaniline	170	ke asi ze il ette	0.660.089	and the second			. (4.6 <u>579</u> 6		Telefolia Telefolia	residentes	(3)(3)(4)
Hexachiorobutadiena	170										
Caprolactam	170	104 GET 97AG 407	3 TAN	Desarrier and Aller					oo a		A CONTRACTOR
4-Chlore-3-methylphenol	170		經濟國	(9][[1]]	116.2	(A) (B) (A) (A) (A) (A) (A) (A) (A) (A) (A) (A					
2-Methylnaphthalene	170 170 %			N. T. B. B. B. B. B. B. B. B. B. B. B. B. B.	1505		- FEET		4525		39238K
Hexacherocycloperiedlenik	170		建设料		经特别		45.00	HO TO CA	the sales		
2,4,6-Trichlorophenol					型新分配		企业 工会		700		5 68 5 W
245 Trichlotophenor 1,1'-Biphenyl	170				e cada						
2 Shorasprade a											
2-Nitroaniline	330										
Pineth philipalae	330										
2,6-Dinitrotoluene	170				200						31579
Aceraphtrylene	100										
3-Nitroaniline	330	可知道為於實際 的	经基金额	eservenski	22.77 909	SARPEZ NORMAN			1885 E	光在表示数据	
Acenaphthene	170				3						
A STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF T	SAME AND LESS	CONTROL CONTROL CONTROL	93215TX	14 to 14 to 14 to 14 to 14 to 14 to 14 to 14 to 14 to 14 to 14 to 14 to 14 to 14 to 14 to 14 to 14 to 14 to 14	MAN A			C 24 20 A 20 A	13 (1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Control of the Control	2.73.72

EPA SAMPLE NO.
C0031

Lab Name: KAP TECHNOLOGIES, INC.	Contract: EPW05032
Lab Code: KAP Case No.: 36456	Mod. Ref No.: SDG No.: C0001
Matrix: (SOIL/SED/WATER) WATER	Lab Sample ID: S-0547.07
Sample wt/vol: 25.00 (g/mL) ML	Lab File ID: A09251
Level: (TRACE or LOW/MED) TRACE	Date Received: 06/13/2007
% Moisture: not dec	Date Analyzed: 06/14/2007
GC Column: RTX-VMS ID: 0.25	(mm) Dilution Factor: 1.0
Soil Extract Volume: (uL)	Soil Aliquot Volume: (uL
CONCENTRATION UNITS: (ug/L or ug/Kg)	UG/L Purge Volume: 25.0 (mL)

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
_	Unknown-01	2.09		<u> </u>
	Unknown 92	10.90	7.7	
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)				
E9667961	Total Alkanes	N/A		

EPA-designated Registry Number.

Su 06/29107.

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EPA SAMPLE NO.
C0032

Lab Name: KAP TECHNOLO	GIES, INC.	Contr	act: EP	W05032	
Lab Code: KAP Cas	se No.:36456 Mod. Ref	No.:_		SDG No.: CO	001
Matrix: (SOIL/SED/WATE	CR) WATER	Lab S	Sample 1	D: S-0549.0	4
Sample wt/vol: 25.00	(g/mL) ML	Lab F	Tile ID:	: A09263	
Level: (TRACE or LOW/M	MED) TRACE	Date	Receive	ed: 06/14/20	07
% Moisture: not dec		Date	Analyze	ed: 06/15/20	07
GC Column: RTX-VMS	ID: 0.25 (mm)	Dilut	ion Fac	tor: 1.0	
Soil Extract Volume: _	(uL) .	Soil	Aliquot	: Volume:	(uL)
	ıg/L or ug/Kg) UG/L				
CAS NUMBER	COMPOUND NAME		RT	EST. CONC.	Q
01	Unknown-01		2.13		
02	Unknown-02		10.90		
03					
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25 26					
27	<u> </u>				-

Total Alkanes

EPA-designated Registry Number.

28 29

E9667961

SOM01.1 (5/2005)

N/A

Su os/29107.

EPA SAMPLE NO.
C0013

Lab Name: KAP TECHNOLOGIES, INC.	Contract: EPW05032
Lab Code: KAP Case No.: 36456	Mod. Ref No.: SDG No.: C0007
Matrix: (SOIL/SED/WATER) SOIL	Lab Sample ID: S-0546.06
Sample wt/vol: 3.700 (g/mL) G	Lab File ID: B09799
Level: (TRACE or LOW/MED) LOW	Date Received: 06/13/2007
% Moisture: not dec. 11	Date Analyzed: 06/13/2007
GC Column: RTX-VMS ID: 0.25	(mm) Dilution Factor: 1.0
Soil Extract Volume:(uL)	Soil Aliquot Volume: (uL)
CONCENTRATION UNITS: (ug/L or ug/Kg)	UG/KG Purge Volume: 10.0 (mL)

CAS NUMBER		RT	EST. CONC.	Q
	Unknown-01	10.09	63	J
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E9667961	Total Alkanes	N/A		

1 EPA-designated Registry Number.

EPA	SAMPLE	NO.
	C0017	

Lab Name: KAP TECHNOLOGIES, INC.	Contract: EPW05032	
Lab Code: KAP Case No.: 36456	Mod. Ref No.: SDG No.: C0007	
Matrix: (SOIL/SED/WATER) SOIL	Lab Sample ID: S-0546.10	
Sample wt/vol: 4.100 (g/mL) G	Lab File ID: B09804	
Level: (TRACE or LOW/MED) LOW	Date Received: 06/13/2007	
% Moisture: not dec. 24	Date Analyzed: 06/13/2007	
GC Column: RTX-VMS ID: 0.25	(mm) Dilution Factor: 1.0	
Soil Extract Volume: (uL)	Soil Aliquot Volume: (u	L
CONCENTRATION UNITS: (ug/L or ug/Kg)	UG/KG Purge Volume: 10.0 (mL)	

CAS NUMBER		RT	EST. CONC.	Q J
	Unknown-01	10.0	8 60	Ĵ
				
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E9667961	Total Alkanes	N/A	1	

EPA-designated Registry Number.

EPA SAMPLE NO. C0021

Lab Name: KAP TECHNOLOGIES, INC.		Contract: EPW05032
Lab Code: KAP Case No.: 36456	Mod. Ref	No.: SDG No.: C0007
Matrix: (SOIL/SED/WATER) SOIL		Lab Sample ID: S-0546.13
Sample wt/vol: 3.300 (g/mL) G		Lab File ID: B09823
Level: (TRACE or LOW/MED) LOW		Date Received: 06/13/2007
% Moisture: not dec. 47		Date Analyzed: 06/14/2007
GC Column: RTX-VMS ID: 0.25	(mm)	Dilution Factor: 1.0
Soil Extract Volume: (uL)		Soil Aliquot Volume: (uL
CONCENTRATION UNITS: (ug/L or ug/Kg)	UG/KG	Purge Volume: 10.0 (mL)

Ε	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	22.15	330	J
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30					
E	29667961	Total Alkanes	N/A	<u> </u>	

1 EPA-designated Registry Number.

EPA SAMPLE NO. C0025

Lab Name: KAP TECHNOLOGIES, INC.	Contract: EPW05032
Lab Code: KAP Case No.: 36456	Mod. Ref No.: SDG No.: C0007
Matrix: (SOIL/SED/WATER) SOIL	Lab Sample ID: S-0546.16
Sample wt/vol: 5.200 (g/mL) G	Lab File ID: B09820
Level: (TRACE or LOW/MED) LOW	Date Received: 06/13/2007
% Moisture: not dec. 14	Date Analyzed: 06/14/2007
GC Column: RTX-VMS ID: 0.25	(mm) Dilution Factor: 1.0
Soil Extract Volume: (uL)	Soil Aliquot Volume: (uL
CONCENTRATION UNITS: (ug/L or ug/Kg)	UG/KG Purge Volume: 10.0 (mL)

CAS NUMBER		RT	EST. CONC.	Q
	Unknown-01	10.09	43	J
				
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			·	
		- 		
E9667961	Total Alkanes	N/A		

EPA-designated Registry Number.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. C0001

Lab	Name:	KAP	TECHNOLOGIES,	INC.

Lab Code: KAP Case No.: 36456

Mod. Ref No.: SDG No.: C0001

Matrix: (SOIL/SED/WATER) WATER

Lab Sample ID: S-0547.01

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: F19059

Contract: EPW05032

Level: (LOW/MED) LOW

Extraction: (Type) CONT

% Moisture: ____ Decanted: (Y/N) N

Date Received: 06/13/2007

Concentrated Extract Volume: 1000

(uL)

Date Extracted: 06/15/2007

Injection Volume: 1.0

Date Analyzed: 06/23/2007

GPC Cleanup: (Y/N) N

pH: 7.1

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	Unknown-01	2.68		J
000301-02-0	9-Octadecenamide, (Z)-	13.45	7.1	N
	Unknown-02	13.52	4.3	J
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E9667962	Total Alkanes	N/A		

EPA-designated Registry Number.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Lab	Name:	KAP	TECHNOLOGIES,	INC
Luv	ranc.	ICT	T DOMINOROGINO!	

Contract: EPW05032

Lab Code: KAP Case No.: 36456 Mod. Ref No.: _____ SDG No.: C0001

Matrix: (SOIL/SED/WATER) WATER

Lab Sample ID: S-0547.03

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: F19060

Level: (LOW/MED) LOW

Extraction: (Type) CONT

% Moisture: _____ Decanted: (Y/N) N

Date Received: 06/13/2007

Concentrated Extract Volume: 1000 (uL)

Date Extracted: 06/15/2007

Injection Volume: 1.0

(uL)

Date Analyzed: 06/23/2007

GPC Cleanup: (Y/N) N

рн: 6.8

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	3.20	4.5	J
02		Unknown-02	12.00		J
03		Unknown-03	12.01	8.1	J
	005776-79-4	1,8-Diazacyclotetradecane-2,9	12.02		ŊJ
05		Unknown-04	12.04		J
06	000301-02-0	9-Octadecenamide, (Z)-	13,45		NJ
07		Unknown-05	15.93		J
08		Unknown-06	15.93	9.6	J
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30					
30	E9667962	Total Alkanes	N/A		
		Dociet VI Number	11/13	L	

² EPA-designated Registry Number.

EPA SAMPLE NO. C0003DL

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP

Case No.: 36456

Mod. Ref No.: SDG No.: C0001

Matrix: (SOIL/SED/WATER) WATER

Lab Sample ID: S-0547.03DL

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: F19066

Level: (LOW/MED) LOW

Extraction: (Type) CONT

% Moisture: ____ Decanted: (Y/N) N

Date Received: 06/13/2007

Concentrated Extract Volume: 1000

Date Extracted: 06/15/2007 Date Analyzed: 06/23/2007

Injection Volume: 1.0 GPC Cleanup: (Y/N) N

pH: 6.8

Dilution Factor: 100.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

(uL)

CAS NUMBER		RT	EST. CONC.	Q
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E9667962	Total Alkanes	N/A		

EPA-designated Registry Number.



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA_SAMPLE_NO. C0004

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP

Case No.: 36456 Mod. Ref No.: SDG No.: C0001

Matrix: (SOIL/SED/WATER) WATER

Lab Sample ID: S-0549.01

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: F19032

Level: (LOW/MED) LOW

Extraction: (Type) CONT

% Moisture: Decanted: (Y/N) N

Date Received: 06/14/2007

Date Extracted: 06/15/2007

Concentrated Extract Volume: 1000 (uL)

Injection Volume: 1.0

Date Analyzed: 06/22/2007

GPC Cleanup: (Y/N) N

pH: 6.8

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	2.08	4.1	J
02		Unknown-02	4.24	6. 9	J
03		Unknown-03	6.05	3.9	J
	000109-21-7	Butanoic acid, butyl ester	6.29	7.0	NJB.
	000057-10-3	n-Hexadecanoic acid	10.85	3.1	NJ
	010544-50-0	Cyclic octaatomic sulfur	11-34	3.7	NJ
	000057-11-4	Octadecanoic acid	11.61	3.4	ŊJ
80		Unknown-04	12.00	13	J
09	00 0112-84-5	13 Docosenamide, (E)	13.46	5.2	NoTB
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	E9667962	Total Alkanes	N/A		

² EPA-designated Registry Number.

Su 06/291 0.



EPA SAMPLE NO. C0005

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP Case No.: 36456

Mod. Ref No.: _____SDG No.: C0001

Matrix: (SOIL/SED/WATER) WATER

Lab Sample ID: S-0549.02

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: F19033

Level: (LOW/MED) LOW

Extraction: (Type) CONT

% Moisture: Decanted: (Y/N) N

Date Received: 06/14/2007

Concentrated Extract Volume: 1000 (uL)

Date Extracted: 06/15/2007

Date Analyzed: 06/22/2007

GPC Cleanup: (Y/N) N

Injection Volume: 1.0

pH: 7.1

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	2.09		J
	000057-10-3	n-Hexadecanoic acid	10.86	10	ŊJ
03	000057-11-4	Octadecanoic acid	11.61	4.2	ŊJ
04	000111-06-8	Hemadocancie acid, butyl cetc	11.69	21	- NJB-
05		Unknown-02	12.01	6.3	J
06	000112-84-5		13_46	19	
07	007683-64-9	Squalene	13.54	6.0	ŊJ
80		Unknown-03	14.39		J
09		Unknown-04	15.96	5.1	J
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- •	E9667962	Total Alkanes	N/A	4.6	J

EPA-designated Registry Number.

su 06/29/07.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA	SAMPLE NO.	
	C0005DL	

Lab Name: KAP TECHNOLOGIES, INC.	Contract: EPW05032
Lab Code: KAP Case No.: 36456	Mod. Ref No.: SDG No.: C0001
Matrix: (SOIL/SED/WATER) WATER	Lab Sample ID: S-0549.02DL
Sample wt/vol: 1000 (g/mL) ML	Lab File ID: F19037
Level: (LOW/MED) LOW	Extraction: (Type) CONT
% Moisture: Decanted: (Y/N) N	Date Received: 06/14/2007
Concentrated Extract Volume: 1000	(uL) Date Extracted: 06/15/2007
Injection Volume: 1.0 (uL)	Date Analyzed: 06/22/2007
GPC Cleanup: (Y/N) N pH: 7.1	Dilution Factor: 20.0

UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	Unknown-01	13.83	45	D
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E9667962	Total Alkanes	N/A	T	

EPA-designated Registry Number.

CONCENTRATION UNITS: (ug/L or ug/Kg)

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

C0006

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP Case No.: 36456 Mod. Ref No.: _____ SDG No.: C0001

Matrix: (SOIL/SED/WATER) WATER

(uL)

Lab Sample ID: S-0549.03

Sample wt/vol: 1000

(g/mL) ML

Lab File ID: F19034

Level: (LOW/MED) LOW

Extraction: (Type) CONT

% Moisture: Decanted: (Y/N) N

Date Received: 06/14/2007

Concentrated Extract Volume: 1000 (uL)

Date Extracted: 06/15/2007

Injection Volume: 1.0

Date Analyzed: 06/22/2007

GPC Cleanup: (Y/N) N

pH: 7.2

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	Unknown-01	2.08		J
	Unknown-02	9.89		J
000057-10-3	n-Hexadecanoic acid	10.86	6.9	ŊJ
000111-06-8	Howadocanoic acid, butyl cate	11.69	29	NJ.
005776-79-4	1,8-Diazacyclotetradecane-2,9	12.03	5.8	NJ
	Unknown-03	12,06	3.5	J
,	Unknown-04	12.07	4.7	J
000301-02-0	9-Octadecenamide, (Z)-	12.27	6.2	NJ
000112 84 5	13 Decesement de, (A)			- NJ
007683-64-9	Squalene	13.54	4.2	NJ
				
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	Total Alkanes		l	

EPA-designated Registry Number.

Su 06/29/07.

1K - FORM I SV-TIC SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

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Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP Case No.: 36456

Mod. Ref No.: SDG No.: C0001

Matrix: (SOIL/SED/WATER) WATER

Lab Sample ID: S-0549.03DL

Sample wt/vol: 1000

(g/mL) ML

Lab File ID: F19038

Level: (LOW/MED) LOW

Extraction: (Type) CONT

% Moisture: _____ Decanted: (Y/N) N

Date Received: 06/14/2007

Concentrated Extract Volume: 1000 (uL)

Date Extracted: 06/15/2007

Injection Volume: 1.0

(uL)

Date Analyzed: 06/22/2007

GPC Cleanup: (Y/N) N

pH: 7.2

Dilution Factor: 10.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	Unknown-01	3.15	25	DJ
000111-06-8	Hevadecannic acid, butyl aste	11 69	37	DNJ
	Unknown-02	13.45	24	DJ
	Unknown-03	13.84	26	DJ
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E9667962 2 EPA-designate	Total Alkanes	N/A	Ll	

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA	SAMPLE	NO.
	C0027	

Lab	Name:	KAP	TECHNOLOGIES.	TNC.

Contract: EPW05032

Lab Code: KAP Case No.: 36456 Mod. Ref No.: _____ SDG No.: C0001

Matrix: (SOIL/SED/WATER) WATER

Lab Sample ID: S-0547.04

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: F19030

Level: (LOW/MED) LOW

Extraction: (Type) CONT

% Moisture: _____ Decanted: (Y/N) N

Date Received: 06/13/2007

Concentrated Extract Volume: 1000 (uL)

Date Extracted: 06/15/2007

Injection Volume: 1.0

Date Analyzed: 06/22/2007

GPC Cleanup: (Y/N) N

pH: 7.4

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Ω
•	Unknown-01	2.08		J
	Unknown-02	6.28		J
000096-76-4	Phenol, 2,4-bis(1,1-dimethyle	7.66	3.4	NJ
000301-02-0	9-Octadecenamide, (Z)-	13.47	5.0	NJ
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E9667962	Total Alkanes	N/A		

EPA-designated Registry Number.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. C0028

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP Case No.: 36456 Mod. Ref No.: SDG No.: C0001

Matrix: (SOIL/SED/WATER) WATER

Lab Sample ID: S-0547.05

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: F19036

Level: (LOW/MED) LOW

Extraction: (Type) CONT

% Moisture: ____ Decanted: (Y/N) N

Date Received: 06/13/2007

Concentrated Extract Volume: 1000 (uL)

Date Extracted: 06/15/2007

Injection Volume: 1.0 GPC Cleanup: (Y/N) N

(uL)

pH: 7.2

Date Analyzed: 06/22/2007 Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	Unknown-01	2.09	2.5	J
2	Unknown-02	6.28	2.4	J
3.	Unknown-03	7.66	2.0	J
4 000111 06 8	Hemadecanois acid, butyl este-	-11.69	2.2	- NJD
5 000301-02-0	9-Octadecenamide, (Z)-	12.27	2.8	ŊJ
6 0 00112 84 5	13 Dessenamide, (Z)	13,46	4.5	NJB.
7	Unknown-04	15.09	2.3	J
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E9667962	Total Alkanes	N/A		

2 EPA-designated Registry Number.

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

ENTATIVELY	IDENTIFIED	COMPOUNDS	

Lab Name: KAP TECHNOLOGIES, INC.

Mod. Ref No.: SDG No.: C0007

Lab Code: KAP

Lab Sample ID: S-0546.01

EPA SAMPLE NO.

Matrix: (SOIL/SED/WATER) SOIL

Case No.: 36456

Contract: EPW05032

Sample wt/vol: 30.00

(q/mL) G Lab File ID: F18937

Level: (LOW/MED) LOW

Extraction: (Type) SONC

% Moisture: 19

Decanted: (Y/N) N

(uL)

Date Received: 06/13/2007

Concentrated Extract Volume: 500

Date Extracted: 06/14/2007

Injection Volume: 1.0

(uL)

Date Analyzed: 06/16/2007

GPC Cleanup: (Y/N) Y

pH: 6.7

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	Unknown-01	2.54	290	J
000112-84-5	13-Docosenamide, (Z)-	23.05	320	NJ
	Unknown-02	24.19	280	·J
000193-39-5	Indeno[1,2,3-cd]pyrene	24.86	330	NJ
	Unknown-03	26.33	350	J
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E9667962	Total Alkanes	N/A	260	J

EPA-designated Registry Number.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. C0008

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP Case No.: 36456 Mod. Ref No.: SDG No.: C0007

Matrix: (SOIL/SED/WATER) SOIL

(g/mL) G

Lab Sample ID: S-0546.02

Sample wt/vol: 30.00

Lab File ID: F18938

Level: (LOW/MED) LOW

Extraction: (Type) SONC

% Moisture: 21 Decanted: (Y/N) N

Date Received: 06/13/2007

Concentrated Extract Volume: 500 (uL)

Date Extracted: 06/14/2007

Injection Volume: 1.0

Date Analyzed: 06/16/2007

GPC Cleanup: (Y/N) Y

pH: 5.2

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	2.05	150	J
02	000079-34-5	Ethane, 1,1,2,2-tetrachloro-	5.69	140	NJ
03	000112-84-5	13-Docosenamide, (Z)-	23.05	320	NJ
04	000205-99-2	Benz[e]acephenanthrylene	23.18	180	NJ
05		Unknown-02	23.80	140	J
06		Unknown-03	24-19	130	J
07	003386-33 - 2	Octadecane, 1-chloro-	24.19	150	NJ
08		Unknown-04	24.98	160	J
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50	E9667962	Total Alkanes	N/A	190	J

² EPA-designated Registry Number.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. C0009

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP

Case No.: 36456

Mod. Ref No.: _____SDG No.: C0007

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: S-0546.03

Sample wt/vol: 30.00

(g/mL) G

Lab File ID: F18939

Level: (LOW/MED) LOW

Extraction: (Type) SONC

% Moisture: 21

Decanted: (Y/N) N

Date Received: 06/13/2007

Concentrated Extract Volume: 500

(uL)

Date Extracted: 06/14/2007

Injection Volume: 1.0

Date Analyzed: 06/16/2007

GPC Cleanup: (Y/N) Y

pH: 5.0

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER		RT	EST. CONC.	Q
L 000205-99-2	Benz[e]acephenanthrylene	23.18	240	NJ
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E9667962	Total Alkanes	N/A		

² EPA-designated Registry Number.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

DEM	SMILTE	110.
	C0010	

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP Case No.: 36456 Mod. Ref No.: _____SDG No.: C0007

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: S-0546.04

Sample wt/vol: 30.00

Lab File ID: F19047

Level: (LOW/MED) LOW

Extraction: (Type) SONC

% Moisture: 21 Decanted: (Y/N) N

(uL)

(g/mL) G

Date Received: 06/13/2007

Concentrated Extract Volume: 500

Date Extracted: 06/14/2007

Injection Volume: 1.0

(uL)

Date Analyzed: 06/22/2007

GPC Cleanup: (Y/N) Y

pH: 4.5

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBE		RT	EST. CONC.	Q J
	Unknown-01	13.06	270	J
	Unknown-02	13.47	330	J
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E9667962	Total Alkanes	N/A	 	

² EPA-designated Registry Number.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. C0011

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP Case No.: 36456 Mod. Ref No.: SDG No.: C0007

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: S-0548.01

Sample wt/vol: 30.00 (g/mL) G Level: (LOW/MED) LOW

Lab File ID: F19096

Extraction: (Type) SONC

% Moisture: 20 Decanted: (Y/N) N

Date Received: 06/14/2007

Concentrated Extract Volume: 500

(uL)

Date Extracted: 06/25/2007

Injection Volume: 1.0

(uL)

Date Analyzed: 06/26/2007

GPC Cleanup: (Y/N) Y

pH: 6.2

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	000057-10-3	n-Hexadecanoic acid	10.82	130	NJ
02	000111-06-8	Hexadecanoic acid, butyl este	11.65	93	ŊJ
03		Unknown-01	12.23	170	J
04		Unknown-02	12.74	84	J
05		Unknown-03	13.44	270	J
06	007683-64-9	Squalene	52ے13	280	NJ.
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	E9667962	Total Alkanes	N/A		
		Registry Number			

² EPA-designated Registry Number.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. C0012

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP

Case No.: 36456 Mod. Ref No.: _____ SDG No.: C0007

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: S-0546.05

Sample wt/vol: 30.00 (g/mL) G

Lab File ID: F19048

Level: (LOW/MED) LOW

Extraction: (Type) SONC

% Moisture: 20

Decanted: (Y/N) N

Date Received: 06/13/2007

Concentrated Extract Volume: 500

(uL)

Date Extracted: 06/14/2007

Injection Volume: 1.0

pH: 5.3

Date Analyzed: 06/22/2007

GPC Cleanup: (Y/N) Y

(uL)

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	Unknown-01	13.24	990	J
000112-84-5	13-Docosenamide, (Z)-	13.48	530	N
	Unknown-02	13.58	390	Ĵ
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E9667962	Total Alkanes	· N/A	 	

² EPA-designated Registry Number.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. C0013

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP

Case No.: 36456 Mod. Ref No.: SDG No.: C0007

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: S-0546.06

Sample wt/vol: 30.00 (g/mL) G

Lab File ID: F19042

Level: (LOW/MED) LOW

Extraction: (Type) SONC

% Moisture: 11 Decanted: (Y/N) N

Date Received: 06/13/2007

Concentrated Extract Volume: 500 (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) UG/KG

Date Extracted: 06/14/2007

Injection Volume: 1.0 (uL)

Date Analyzed: 06/22/2007

GPC Cleanup: (Y/N) Y

pH: 7.4

Dilution Factor: 1.0

CAS NUMBE	COMPOUND NAME	RT	EST. CONC.	Q
	Unknown-01	10.93	220	J
	Unknown-02	11.00	230	J
	Unknown-03	11.10	220	J
	Unknown-04	11.23	300	J
	Unknown-05	11.28		J
	Unknown-06	14,-03	230	Ĵ
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E9667962	Total Alkanes	N/A	570	J

EPA-designated Registry Number.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. C0014

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP Case No.: 36456 Mod. Ref No.: SDG No.: C0007

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: S-0546.07

Sample wt/vol: 30.00

Lab File ID: F19043

Level: (LOW/MED) LOW

Extraction: (Type) SONC

% Moisture: 16 Decanted: (Y/N) N

(g/mL) G

Date Received: 06/13/2007

Concentrated Extract Volume: 500 (uL)

Date Extracted: 06/14/2007

Injection Volume: 1.0 (uL)

Date Analyzed: 06/22/2007

GPC Cleanup: (Y/N) Y

pH: 7.0

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1 000464-49-3	Bicyclo[2.2.1]heptan-2-one, 1	3.95		ŊJ
2	Unknown-01	3.97	250	J
3	Unknown-02	10.64	240	J
4	Unknown-03	10.69	400	J
5	Unknown-04	10.83	350	J
6 000544-63-8	Tetradecanoic acid	10:86	560	NJ
7	Unknown-05	11.99	300	J
8	Unknown-06	14.31	30.0	J
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E9667962	Total Alkanes	N/A	700	J

² EPA-designated Registry Number.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

C0015

Lab Name: KAP TECHNOLOGIES, INC.

Lab Code: KAP

Case No.: 36456 Mod. Ref No.: _ _ SDG No.: C0007

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: S-0546.08

Sample wt/vol: 30.00

Lab File ID: F18953

Contract: EPW05032

Level: (LOW/MED) LOW

(g/mL) G

Extraction: (Type) SONC

% Moisture: 20

Decanted: (Y/N) N

Date Received: 06/13/2007 Date Extracted: 06/14/2007

Concentrated Extract Volume: 500

Date Analyzed: 06/18/2007

Injection Volume: 1.0 GPC Cleanup: (Y/N) Y

(uL)

pH: 7.1

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

(uL)

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
005989-27-5	D-Limonene	8.02	6100	ŊJ
	Unknown-01	19.72	1300	J
	Unknown-02	20.94		J
	Unknown-03	20.95	1400	J
	Unknown-04	20.97	1700	J
	Unknown-05	21:09	1200	J
· [Unknown-06	21.18	2400	J
	Unknown-07	21.23		J
	Unknown-08	22.23	<u> </u>	J
	Unknown-09	22.36	1300	J
E9667962	Total Alkanes	N/A		

² EPA-designated Registry Number.



1K - FORM I SV-TIC SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. C0015RE

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP Case No.: 36456 Mod. Ref No.: SDG No.: C0007

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: S-0546.08RE

Sample wt/vol: 30.00 (g/mL) G

Lab File ID: F18995

Level: (LOW/MED) LOW

Extraction: (Type) SONC

% Moisture: 20

Decanted: (Y/N) N

Date Received: 06/13/2007

Concentrated Extract Volume: 500

Date Extracted: 06/14/2007 Date Analyzed: 06/21/2007

Injection Volume: 1.0 (uL) GPC Cleanup: (Y/N) Y

pH: 7.1

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

(uL)

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1 000138-86-3	Limonene	2.72	5000	ΝĴ
2	Unknown-01	11.94		J
3	Unknown-02	11.95	5100	J
4	Unknown-03	11.97	3400	J
5	Unknown-04	12.00	3500	Ĵ
6	Unknown-05	12=12	5400	J
17	Unknown-06	12.16	3600	J
8	Unknown-07	12.83		J
9	Unknown-08	12.86	2600	J
0	Unknown-09	12.97	2900	J
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8			 	
9			 	-
ő 			 	
E9667962	Total Alkanes	N/A	 	

² EPA-designated Registry Number.



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. C0016

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP Case No.: 36456 Mod. Ref No.: SDG No.: C0007

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: S-0546.09

Sample wt/vol: 30.00 (q/mL) G

Lab File ID: F18954

Level: (LOW/MED) LOW

Extraction: (Type) SONC

% Moisture: 14 Decanted: (Y/N) N

Date Received: 06/13/2007

Concentrated Extract Volume: 500 (uL)

Date Extracted: 06/14/2007

Injection Volume: 1.0

(uL)

Date Analyzed: 06/18/2007

GPC Cleanup: (Y/N) Y pH: 7.7

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
——————————————————————————————————————	Unknown-01	2.51	1200	ŭ
	Unknown-02	3.15	880	J
	Unknown-03	19.15	270	Ĵ
	Unknown-04	19.99	290	J
	Unknown-05	22.72	310	Ĵ
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E9667962	Total Alkanes	N/A		

EPA-designated Registry Number.



1K - FORM I SV-TIC SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. C0017

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP Case No.: 36456 Mod. Ref No.: SDG No.: C0007

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: S-0546.10

Sample wt/vol: 30.00 (g/mL) G

Lab File ID: F18955

Level: (LOW/MED) LOW

Extraction: (Type) SONC

% Moisture: 24 Decanted: (Y/N) N

Date Received: 06/13/2007

Concentrated Extract Volume: 500 (uL)

Date Extracted: 06/14/2007

Injection Volume: 1.0

(uL)

Date Analyzed: 06/18/2007

GPC Cleanup: (Y/N) Y

pH: 7.7

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	Unknown-01	2.51	860	J
2	Unknown-02	3.14	650	J
3	Unknown-03	3.42	840	J
4	Unknown-04	19.21	1100	J
5 051218-45-2	Metolachlor	19.51	7200	NJ
6	Unknown-05	19-81	1200	J
7	Unknown-06	19.96	2800	J
8 000206-44-0	Eluoranthene	20.10	······································	eneral de
9	Unknown-07	21.56	520	J
.0	Unknown-08	22.81	430	J
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E9667962	Total Alkanes	N/A	<u>[</u>	

EPA-designated Registry Number.



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. C0017RE

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

(g/mL) G

Lab Code: KAP Case No.: 36456 Mod. Ref No.: SDG No.: C0007

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: S-0546.10RE

Sample wt/vol: 30.00

Lab File ID: F18996

Level: (LOW/MED) LOW

Extraction: (Type) SONC

% Moisture: 24 Decanted: (Y/N) N

Date Received: 06/13/2007

Concentrated Extract Volume: 500

Date Extracted: 06/14/2007

Injection Volume: 1.0 (uL)

(uL)

Date Analyzed: 06/21/2007

GPC Cleanup: (Y/N) Y

pH: 7.7

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	10.70	1400	J
02	051218-45-2	Metolachlor	10.93	6800	NJ
03		Unknown-02	11.07	440	J
04		Unknown-03	11.14	1700	J
05		Unknown-04	11.25	1100	J
06		Unknown-05	11-25	1500	J.
07	000078-51-3	Ethanol, 2-butoxy-, phosphate	12.40	490	NJ
08		Unknown-06	13.30	710	J
09		Unknown-07	14.01	920	J
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20	E9667962	Total Alkanes	N/A		
		Total Alkanes	N/A	LL	

² EPA-designated Registry Number.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

C0018

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP

Case No.: 36456 Mod. Ref No.: _____SDG No.: C0007

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: S-0548.02

Sample wt/vol: 30.00 (g/mL) G

Lab File ID: F19097

Level: (LOW/MED) LOW

Extraction: (Type) SONC

% Moisture: 48 Decanted: (Y/N) N

Date Received: 06/14/2007

Concentrated Extract Volume: 500

(uL)

Date Extracted: 06/25/2007

Injection Volume: 1.0

Date Analyzed: 06/26/2007

GPC Cleanup: (Y/N) Y

рн: 6.3

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	Unknown-01	10.64		J
2	Unknown-02	10.75		J
3	Unknown-03	10.79		J
000438-23-3	Androstane, (5.beta.)-	10.96	1700	ŊJ
5	Unknown-04	11.19	2000	J
5	Unknown-05	11:-20	1200	J
7	Unknown-06	11.35	1200	J
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E9667962	Total Alkanes	N/A	ļ	

² EPA-designated Registry Number.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. C0019

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP

Case No.: 36456

Mod. Ref No.: SDG No.: C0007

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: S-0546.11

Sample wt/vol: 30.00

Lab File ID: F18956

Level: (LOW/MED) LOW

Extraction: (Type) SONC

% Moisture: 45 Decanted: (Y/N) N

(g/mL) G

Date Received: 06/13/2007

Concentrated Extract Volume: 500 (uL)

Date Extracted: 06/14/2007

Injection Volume: 1.0

(uL)

Date Analyzed: 06/18/2007

GPC Cleanup: (Y/N) Y

pH: 7.4

Dilution Factor: 1.0

CONCENTRATION	UNITS: (ug/L	or	ug/Kg)	UG/KG
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CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
)1	Unknown-01	22.11		J
2 000112-84-5	13-Docosenamide, (Z)-	23.05		NJ
)3	Unknown-02	23.15		J
4	Unknown-03	25.60		J
)5	Unknown-04	25.60		J
06	Unknown-05	2₹:82	560	J
)7				
)8				
)9				
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30				
E9667962	Total Alkanes	N/A	3100	Ĵ

² EPA-designated Registry Number.



1K - FORM I SV-TIC SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. C0020

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP Case No.: 36456 Mod. Ref No.: SDG No.: C0007

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: S-0546.12

Sample wt/vol: 30.00

Lab File ID: F18957

Level: (LOW/MED) LOW

Extraction: (Type) SONC

% Moisture: 37 Decanted: (Y/N) N

(g/mL) G

Date Received: 06/13/2007

Concentrated Extract Volume: 500 (uL)

Date Extracted: 06/14/2007

Injection Volume: 1.0

Date Analyzed: 06/18/2007

GPC Cleanup: (Y/N) Y

pH: 7.1 Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Unknown-01 Unknown-02 Unknown-03 Unknown-04 Unknown-05 Unknown-06 Unknown-07	17.57 17.66 17.73 17.81 17.90 18.06	1300 1600 1000	J J J J
Unknown-03 Unknown-04 Unknown-05 Unknown-06	17.73 17.81 17.90	1600 1000	J
Unknown-04 Unknown-05 Unknown-06	17.81 17.90	1000	
Unknown-05 Unknown-06	17.90		J
Unknown-06		890	
	19-06		J
Unknown-07	I TOLOG	1600	J
OTTATIONIT O /	18.12	1100	J
n Hexadecanoic acid			NJ B
	- 		
- 			
			
			
			
- 			
			
			
			
mat - 1 D l lange	NI / 7	2100	J
	Total Alkanes	n Hexadecanoic acid 19.49	n liexadecanoic acid 19.49 1400

² EPA-designated Registry Number.

Su 06/29107.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. C0021

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP Case No.: 36456 Mod. Ref No.: SDG No.: C0007

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: S-0546.13

Sample wt/vol: 30.00

Lab File ID: F18958

Level: (LOW/MED) LOW

% Moisture: 47 Decanted: (Y/N) N

(g/mL) G

Extraction: (Type) SONC Date Received: 06/13/2007

Date Extracted: 06/14/2007

Concentrated Extract Volume: 500

(uL)

Date Analyzed: 06/18/2007

GPC Cleanup: (Y/N) Y

Injection Volume: 1.0

рH: 5.6

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	Unknown-01	12.48	3300	J
	Unknown-02	12.67	4300	J
	Unknown-03	12.70	6300	Ĵ,
	Unknown-04	13.21	2300	Ĵ
	Unknown-05	17.59	2000	J
	Unknown-06	17.795	3200	Ţ
	Unknown-07	18.00	2800	J
	Unknown-08	18.03	3000	J
	<u> </u>		·	
<u> </u>				
			f	
E9667962	Total Alkanes	N/A	6800	J

EPA-designated Registry Number.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

C0022

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP

Case No.: 36456 Mod. Ref No.: _____ SDG No.: C0007

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: S-0546.14

Sample wt/vol: 30.00 (g/mL) G

Lab File ID: F19044

Level: (LOW/MED) LOW

Extraction: (Type) SONC

% Moisture: 8.0 Decanted: (Y/N) N

Date Received: 06/13/2007

Concentrated Extract Volume: 500 (uL) Injection Volume: 1.0

Date Extracted: 06/14/2007

Date Analyzed: 06/22/2007

GPC Cleanup: (Y/N) Y

pH: 7.3

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBE	R COMPOUND NAME	RT	EST. CONC.	Q
1	Unknown-01	12.57	300	J
2	Unknown-02	13.24	220	J
3 000112-84-5	13-Docosenamide, (Z)-	13.47	650	NJ
4 000205-99-2	Benz[e]acephenanthrylene	13.61	220	ŊJ
5	Unknown-03	13.63	270	J
6 000544-77-4	Hexadecane, 1-iodo-	14.40	910	NJ
7 013187-99-0	2-Bromo dodecane	15.26	650	NJ
8				
.9				
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7				•
28				
9				
30				
E9667962	Total Alkanes	N/A	1400	J

EPA-designated Registry Number.

1K - FORM I SV-TIC SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TENTATIVELY IDENTIFIED COMPOUNDS

C0023

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP Case No.: 36456 Mod. Ref No.: _____ SDG No.: C0007

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: S-0546.15

Sample wt/vol: 30.00 (g/mL) G

Lab File ID: F19045

Level: (LOW/MED) LOW

Extraction: (Type) SONC

% Moisture: 10

Decanted: (Y/N) N

Date Received: 06/13/2007

Concentrated Extract Volume: 500 (uL) Date Extracted: 06/14/2007

Injection Volume: 1.0 (uL)

Date Analyzed: 06/22/2007

GPC Cleanup: (Y/N) Y pH: 7.5

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG.

CAS NUMBER		RT	EST. CONC.	Q
01	Unknown-01	13.21	380	Ĵ
2 000112-84-5	13-Docosenamide, (Z)-	13.48	380	NJ
3 000192-97-2	Benzo[e]pyrene	13.62	580	NJ
4 1000259-58-5	Pentadec-7-ene, 7-bromomethyl	13.80	400	NJ
)5	Unknown-02	14.20	1100	J
)6	Unknown-03	14-47	630	J
)7	Unknown-04	15.46	280	J
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19				-
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E9667962	Total Alkanes	N/A	1600	J

² EPA-designated Registry Number.

EPA SAMPLE NO. SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET C0025 TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: KAP TECHNOLOGIES, INC.

Contract: EPW05032

Lab Code: KAP

Case No.: 36456

(q/mL) G

Mod. Ref No.: SDG No.: C0007

Matrix: (SOIL/SED/WATER) SOIL

Lab Sample ID: S-0546.16

Sample wt/vol: 30.00

Lab File ID: F19046

Level: (LOW/MED) LOW

% Moisture: 14

Decanted: (Y/N) N

Extraction: (Type) SONC Date Received: 06/13/2007

Concentrated Extract Volume: 500

Date Extracted: 06/14/2007

Injection Volume: 1.0 (uL) (uL)

Date Analyzed: 06/22/2007

GPC Cleanup: (Y/N) Y

pH: 8.2

Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01 000057-10-3	n Hexadeconois acid	10.87	270	NJB
02	Unknown-01	10.97	270	J
03	Unknown-02	11.09	260	J
04	Unknown-03	11.10		J
05 001576-67-6	Phenanthrene, 3,6-dimethyl-	11.23	280	NJ
06 005737-13-3	Cyclopenta(def)phenanthrenone	1 1. 29	410	NJ
07 000239-35-0	Benzo[b]naphtho[2,1-d]thiophe	12.47	240	NJ
08 025116-58-9	20.XiLanosta-7,9(11)-diene-	13.24	350	NJ
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30				
E9667962	Total Alkanes	N/A	530	J

² EPA-designated Registry Number.

50 06/29/07.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION III ENVIRONMENTAL SCIENCE CENTER 701 MAPES ROAD FORT MEADE, MARYLAND 20755-5350

DATE : July 10, 2007

SUBJECT: Region III Data QA Review

FROM: Khin-Cho Thaung F for KLT

Region III ESAT RPO (3EA20)

TO : James Hargett

Regional Project Manager (3HS12)

Attached is the organic data validation report for the Markay Chemicals site (Case # 36456 SDG #MC0027) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2743.

Attachment

cc: Pamela Hayes (WV Dep Triad Engineering)
Lydia Work (Triad Eng.)

TO File #: 0007

TDF#: 0665

ORIGINA,

Lockheed Martin Enterprise Solutions & Services ESAT Region 3
US EPA Environmental Science Center 701 Mapes Road Ft. Meade, MD 20755-5350 Telephone 410-305-3037 Facsimile 410-305-3597

LOCKHEED MARTIN We never forget who we're working for™

DATE:

June 28, 2007

SUBJECT:

Inorganic Data Validation (IM1 Level)

Case: 36456 SDG: MC0027

Site: Markay Chemicals

FROM:

Mirna Alpizar MA

Inorganic Data Reviewer

Mahboobeh Mecanic Senior Oversight Chemist

TO:

Khin-Cho Thaung

ESAT Region 3 Project Officer

OVERVIEW

Case 36456, Sample Delivery Group (SDG) MC0027, consisted of three (3) aqueous samples analyzed for total metals and cyanide (CN) by Sentinel, Inc. (SENTIN). The sample set contained two (2) rinsate blanks. Samples were analyzed in accordance with Contract Laboratory Program (CLP) Statement of Work (SOW) ILM05.4 through Routine Analytical Services (RAS) program.

SUMMARY

Data were validated according to EPA Region III Innovative Approaches (Level IM1) for Validation of Inorganic Data, June 1995, which includes review of all Forms but excludes the review of raw data. Areas of concern with respect to data usability are listed below.

Data in this case have been impacted by outliers present in the laboratory and rinsate blanks. Details of these outliers are discussed under "Minor Problems" and qualified analytical results for all samples are summarized on the Data Summary Form (DSF).

MINOR PROBLEMS

Continuing calibration (CCB) and/or rinsate (RB) blanks had reported results greater than the Method Detection Limits (MDLs) for the analytes listed below. Positive results for these analytes in affected samples which are less than or equal to five times ($\leq 5X$) the blank concentrations may be biased high and have been qualified "B" on the DSF.

Blank

Affected Analytes

CCB

beryllium (Be)

RB

arsenic (As), sodium (Na)

Why Contract

CCBs had negative results greater than the absolute values of the MDLs for aluminum (Al), mercury (Hg), and zinc (Zn). Positive results in affected samples which are less than two times (<2X) the absolute values of the blank concentrations may be biased low. The "L" qualifier for these outliers has been superseded by "J" on the DSF. Quantitation limits in affected samples may be biased low and have been qualified "UL" on the DSF.

NOTES

Reported results with values greater than the MDL but below Contract Required Quantitation Limit (CRQL) were qualified "J" on the DSF unless superseded by "B".

Sample MC0027 was used to perform QC (matrix spike, laboratory duplicate and serial dilution analyses). According to the Regional Chain-of-Custody, this sample is a rinsate blank.

Sample MC0027 was re-analyzed at a two-fold (2X) dilution for Na in order to bring the concentration of this analyte within the linear range of the instrument. The result for this analyte in this sample was reported from the diluted analysis and annotated with a "+" on the DSF.

Several chemicals used in the analysis of cyanide (CN) showed an expiration date of May 2007. Samples for this case were analyzed in June 2007. A clarification on this finding was requested from the laboratory but has not been received as to the date of this report. No data were qualified based on this finding.

Data for Case 36456, SDG MC0027, were reviewed in accordance with EPA Region 3 Innovative Approaches (Level IM1) for Validation of Inorganic Data, June 1995.

ATTACHMENTS

INFORMATION REGARDING REPORT CONTENT

APPENDIX A GLOSSARY OF DATA QUALIFIER CODES APPENDIX B DATA SUMMARY FORM(S) APPENDIX C CHAIN OF CUSTODY RECORD(S)

APPENDIX D LABORATORY CASE NARRATIVE(S)

AFFERDIAD LABORATORI CASE NARRATIVE(S

DCN: 36456 MC0027.IM1.doc

APPENDIX A GLOSSARY OF DATA QUALIFIERS

UNICIAIA,

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

CODES RELATED TO IDENTIFICATION

(confidence concerning presence or absence of analytes):

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

 $(NO\ CODE) = Confirmed\ identification.$

- B = Not detected substantially above the level reported in laboratory or field blanks.
- R = Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

CODES RELATED TO QUANTITATION

(can be used for both positive results and sample quantitation limits):

- J = Analyte Present. Reported value may not be accurate or precise.
- K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- UJ = Not detected, quantitation limit may be inaccurate or imprecise.
- UL = Not detected, quantitation limit is probably higher.

OTHER CODES

O = No analytical result.

APPENDIX B

DATA SUMMARY FORMS (DSF)



DATA SUMMARY FORM: INORGANIC

Page __1__ of __1__

Case #: 36456

SDG: MC0027

Number of Soil Samples: 0

Site:

MARKAY CHEMICALS

Number of Water Samples: 3

Lab.:

SENTIN

Sample Number :		MC0004		MC0027		MC0028					
Sampling Location :		GW4		SW2		SW3					
Field QC:				Rinsate Blank		Rinsate Blank				l	
Matrix:	Water		Water		Water						
Units:		ug/L		ug/L		ug/L				-	
Date Sampled :		6/13/2007		6/12/2007		6/12/2007					
Time Sampled :		09:00		14:30		12:00					
Dilution Factor :		1.0	···	1.0/2.0		1.0					
<u> ANALYTE</u>	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	200	10300		147	J	86.6	J	00000 NOOTA (1271, 1715, 1876)	1 10 80 Y 313	70.500000000000000000000000000000000000	10040 IT A
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BARILIN	200	963		78000.00							330
BERYLLIUM	5	2.8	В		**********	granino massessos estados	501,775,65,813	or shape in terrocural consequence	050000000000000000000000000000000000000	ales den alle kreden	li in i ago . d
*CADMIUM	5	2,7	. j .				3. B				
CALCIUM .	5000	33700	571.3	253	J	279	J			22 0 / 22	F855, 88408
*CHROMIUM	10	25.1	i di	1.1	J		A 25 V				
COBALT	50	38.2	J	00000000000000000000000000000000000000	V 20140280		39/03/28	Program Wasse, Social is (1800	ER NYSLER	Bess Silvie suse Visión	CM\$800 NG 808
COPPER	25	20.0	, J				\$\$.23		(0.00 :XXX (0.00 :XXX)		
IRON	100	27400		23.2	J	10 N 1 1 2004 (2005) (8	862/80798	10 magazi (170 a 277)	Banda)		8.8833
*LEAD	10	14.3	4000	(Mag/10, 29, 20)		C + 5 D / 4 C \$60000 C 18 C 5 C C 4 C 4			83.0		\$5000 N
MAGNESIUM	5000	37300		50000000000000000000000000000000000000	200			2008 0 00	 3 58 d d2	6.70.0 0.60.60.6	352.77
MANGANESE	15	2020		1.3	J				0.5863		
MERCURY	0.2	0.080	J Colesa		UL		UL	 	44885	SVIVI H. BA	0.00
NICKEL	40	154	30.99				1,72,00	828 ASK (1941, 1938	0906		1223
POTASSIUM	5000	7040	 	467	J	321	J		1833EC		393
SELENIUM	35	1636 / triat/1888					K K	101978055	X456	Less and Sales	26456
SILVER	10				 	1920		59000000000	160 A 65		boad
SÖDIUM	5000	42200	В	716000+		1920			100 Bud		€ 18600073
THALLIUM	25	nn r	.		373.SI		*** ******	6000 000000000000000000000000000000000	8 K 545		60.00
VANADIUM	80	20.5	(J.)				10		r.GM		
ZINC	60	211	1980,98		UL		UL	80032E572E356	N 1880 33		1 2222
*CYANDE	10	K	100.0	1 2222							122.00

CRQL = Contract Required Quantitation Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

Revised 09/99

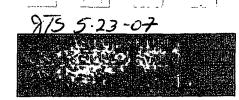
To calculate sample quantitation limits: (CRQL * Dilution Factor)

+ = Reported from diluted analysis

APPENDIX C

CHAIN-OF-CUSTODY RECORDS

U.S. EPA Region III Analytical Request Form Revision 10.06



WVD054 116645 36456 Site Activity: SIR Date: 5/23/2007 McCorkle Street Address: 302 MecCorkle Avenue Site Name: Markay Chemicals wv Latitude: 38°23'39.39" Longitude: 81°50'38.41 State: City: St. Albans CERCLIS #: WVD05416645 Program: Superfund Acct. #: 2007 T03 N302 DD2C A3JF QB00 Operable Unit: 00 Site ID: A3JF Spill ID: Site Specific QA Plan Submitted: No XYes Title: Date Approved: E-mail: Hargett.James@epamail.epa.gov Cell Phone #: EPA Project Leader: James Hargett Phone#: 215-814-3305 E-mail: HNapier@triadeng.com Request Preparer: Heather Napier Phone#: 304-755-0721 Cell Phone #: 304-539-6120 E-mail: PDHayes@wvdep.org Site Leader: Pamela Hayes Phone#: 304-926-0499 Cell Phone #: Contractor: Triad Engineering, Inc. EPA CO/PO: Method: SOM01.1 Matrix: soil Parameter: TCL BNA, TCL VOC #Samples 16 KAP Parameter: TAL metals, Hg, CN Sensen Method: ILM05.3 #Samples 16 Matrix: soil Parameter: TCL BNA, TCL VOC #Samples 6 Matrix: water-non potable Method: SOM01.1 YAP Matrix: water-non potable Parameter: TAL metals, Hg, CN #Samples 6 Method: ILM05.3 26381 #Samples Matrix: Method: Parameter: #Samples Matrix: Parameter: Method: #Samples Matrix: Parameter: Method: #Samples Matrix: Parameter: Method: #Samples Matrix: Parameter: Method: Ship Date From: 6/12/2007 Ship Date To: 6/14/2007 Org. Validation Level M2 Inorg. Validation Level IM1 Unvalidated Data Requested: No Yes If Yes, TAT Needed: 14days 7days 72hrs 48hrs 24hrs Other (Specify) Validated Data Package Due: 42 days 30 days 21 days 14 days Other (Specify) Electronic Data Deliverables Required: No X Yes (EDDs will be provided in Region 3 EDD Format) Special Instructions:



USEPA Contract Laboratory Program Inorganic Traffic Report & Chain of Custody Record

Case No:

DAS No:

36456

Region: Project Code:	3	Date Shipped: Carrier Name:	6/12/2007 FedEx		Chain of Custody Rec	ord	Sampler Signature:	
Account Gode:	2007 T 03W302DD2C A3JFQB00	Airbill:	862077056438		Relinquished By		Received By	(Date / Time)
CERCLIS ID:	WVD05416645	Shipped to:	Sentinel Inc.		leasther?	aper 3	7-07	
Spill ID:			116 Washington Street,	. 7	2	April 1		
Site Name/State:	Markay Chemicals/WV		NE Huntsville AL 35801			·		
Project Leader:	Heather A. Napler Other	į	(256) 534-9800	ı	3			
Action: Sampling Co:	Triad Engineering, Inc.				4			

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ DALLORAPRUT	TAG No./ PRESERVATIVE Bottles	STATION LOCATION		COLLECT F/TIME	ORGANIC SAMPLE No.	QC Type
MC0019	Soil/Sediment/ Jennifer L. Welch	va	TM/CN (21)	3170 (1)	\$ \$7	S: 6/12/2007	9:45	C0019	
MC0020	Soil/Sediment/ Jennifer L. Welch	L/G	TM/CN (21)	3176 (1)	938	S: 6/12/2007	10:10	C0020	••
MC0021	Soll/Sediment/ Shannon L. Cox	r\@	TWCN (21)	3182 (1)	\$59	S: 6/12/2007	9:30	C0021	
MC0022	Soil/Sediment/ Jennifer L. Welch	L/G	TM/CN (21)	3188 (1)	S S 10	S: 6/12/2007	15:50	C0022	••
MC0023	Solt/Sediment/ Jennifer L. Welch	I'∕G	TM/CN (21)	3194 (1)	8811	S: 6/12/2007	15:50	C0023	Fleid Duplicate
MC0025	Soil/Sediment/ Jennifer L. Welch	ĽĠ	TM/CN (21)	3208 (1)	SS13	S: 6/12/2007	10:40	C0025	<i>II.</i>
MC0027	Surface Water/ Heather A.	ΓÆ	CN (21), TM (21)	3218 (HNO3), 3229 (NaOH) (2)	SW2 /	S: 6/12/2007	14:30	C0027	Rinsate
MC0028	Napler Surface Water/ Heather A. Napier	L/G	CN (21), TM (21)	3224 (HNO3), 3225 (NaOH) (2)	swa 🗸	S: 6/12/2007	12:00	C0028	Rinsate

Shipment for Case	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Complete? N	mc0013,mc0010	heather Mapier	
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Typa/Designate: Composite = C, Grab = G	Shipment iced?
CN = CLP TAL Cyanide	TM = CLP TAL TOTAL METALS, TM/CN = CLP TAL TOTAL META	als and Cyanide	

TR Number:

3-575621085-061207-0001

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, 2000 Edmund Halley Dr., Reston, VA. 20191-3400 Phone 703/264-9348 Fax 703/264-9222



GE	PA
----	----

USEPA Contract Laboratory Program Inorganic Traffic Report & Chain of Custody Record

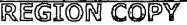
Case No:	36456	D
DAS No:		

Region: Project Code:	3	Date Shipped: Carrier Name:	6/13/2007 FedEx	Chain of Custody Re	cord	Sampler Signature:	·
Account Code:	2007 T 03W302DD2C A3JFQB00	Airbill:	862077056508	Relinquished By	(Date / Time)	Received By	(Date / Time)
CERCLIS ID:	WVD05416645	Shipped to:	Sentinel Inc.	4 pother?	10 pier	7707 820	
Spill ID:			116 Washington Street,	THE TOOL	1900	800	
Site Name/State:	Markay Chemicals/WV		NE	2	,	ĺ	
Project Leader:	Heather A. Napler	Į.	Huntsville AL 35801 (258) 534-9800	3			
Action:	Other		(200) 004-0000			ļ	
Sampling Co:	Triad Engineering, Inc.	<u> </u>		4			

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TUFNAROUND	TAG No./ PRESERVATIVE/ Bothes	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MC0004	Ground Water/ Shannon L. Cox	L/G	CN (21), TM (21)	351 (HNO3), 354 (NaOH) (2)	GW4	S: 6/13/2007 9:00	C0004	##
MC0011	Subsurface Soil (>12")/	L/G .	TM/CN (21)	3112 (1)	SB5	S: 6/13/2007 10:25	C0011	-
MC0018	Shannon L. Cox Soil/Sediment/ Jennifer L. Welch	L/G	TM/CN (21)	3164 (1)	SS6	S: 6/13/2007 8:45	C0018	

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s): Washer Mager	Chain of Custody Seal Number:
Analysis Key:	Consentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment iced?
CN = CLP TAL Cyanide	, TM = CLP TAL TOTAL METALS, TM/CN = CLP TAL TOTAL META	als and Cyanide	

TR Number: 3-575621085-061307-0001
PR provides preliminary recults. Requests for preliminary recults will increase analytical costs.
Send Copy to: Sample Management Office, 2000 Edmund Halley Dr., Reston, VA. 20191-3400 Phone 703/264-9348 Fax 703/264-9222



Daphne Woods

From:

"Schaffer, Keri" <kschaffer@fedcsc.com>

To:

"Daphne Wood" <dwoods@sentinellab.com>

Cc:

<slizys.dan@epa.gov>; <Harris.Carroll@epamail.epa.gov>; <thaung.khin-cho@epa.gov>;

<kwedar.john@epa.gov>

Sent:

Wednesday, June 13, 2007 1:45 PM

Subject:

Region 03 | Case 36456 | Lab SENTIN | Issue Documentation | FINAL

Daphne,

Summary Start

Discrepancies with tags, jars, and/or TR/COC -

Issue 1: The TR/COC lists the analysis as TM/CN, however, per scheduling, the analysis should be TM/Hg/CN.

Resolution 1: In accordance with previous direction from Region 3, the laboratory will note the issue in the Case/SDG Narrative, perform the analyses as indicated on the Scheduling Notification Form, and proceed with the analysis of the samples.

- Insufficient/inappropriate designation of laboratory QC -

Issue 2: There are 2 soil samples listed for QC. The laboratory only needs 1 sample for QC. The laboratory will use sample MC0010 and disregard MC0013.

Resolution 2: In accordance with previous direction from Region 3, the laboratory will select on of the designated samples per matrix for laboratory QC. The laboratory will note the issue in the Case/SDG Narrative, notify the SMO coordinator of the sample selected for laboratory QC, and proceed with the analysis of the samples.

Summary End

Please contact me if you have any further questions or problems.

Thank you,

Keri Schaffer
Environmental Coordinator
Computer Sciences Corporation
15000 Conference Center Drive
Chantilly, VA 20151

Phone: 703-818-4346

Email: kschaffer@fedcsc.com

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6/13 2:36pm

Conversation between Keri Schaffer, SMO, and Daphne Woods, SENTIN. SMO asked the laboratory which sample they will be disregarding for QC. The laboratory said they will be disregarding sample MC0013 for QC.

From: Berardino, Michelle

Sent: Wednesday, June 13, 2007 2:29 PM

To: Schaffer, Keri

Subject: FW: Case 36456

From: Sample Receipt[SMTP:SAMPLE_RECEIPT@SENTINELLAB.COM]

Sent: Wednesday, June 13, 2007 2:02:43 PM

To: Berardino, Michelle Subject: Fw: Case 36456 Auto forwarded by a Rule

- Hi again,

Here are a couple of more issues for this case:

- 4. The analysis is listed as TM/CN on the TR/COC, but the schedule lists TM/Hg/CN.
- 5. There are 2 soil QC samples listed. Assuming no more samples are coming in, then we will only need one QC sample. We will used MC0010.

Please let me know something as soon as possible about these issues.

Thanks, Daphne

From: Sample Receipt
To: Michelle Berardino

Sent: Wednesday, June 13, 2007 11:12 AM

Subject: Case 36456

Hi Michelle.

Here are a few issues for Case 36456:

- 1. The schedule lists the TAT as 14-day, but the TR/COC has 21-day.
- 2. We received 16 soil samples and 2 water samples. We are scheduled for 16 soils and 6 water samples. The shipment is marked as not complete on the TR/COC. Do you know if we have received all the soil samples for this Case since we received all 16 that we were scheduled for? I just don't want to release them and some more show up tomorrow or something.
- 3. There are 3 sample containers for sample MC0013. The tag attached to one of the samples listed the sample as C0013 with BNA analysis and a tag number of 3129. We received containers with tag numbers 3132 and 3133, but no 3134.

Thanks so much,
Daphne

e/o/a

Daphne Woods

From:

"Schaffer, Keri" <kschaffer@fedcsc.com>

To:

"Daphne Woods" <dwoods@sentinellab.com>

Sent:

Thursday, June 14, 2007 12:30 PM

Subject:

Region 03 | Case 36456 | Lab SENTIN | Issue Multiple | FINAL

Daphne,

Summary Start

-Discrepancies with tags, jars, and/or TR/COC- Issue 1: The TR/COC lists a TAT of 21 days, however per scheduling the TAT should be 14 days

Resolution 1: In accordance with previous direction from Region 3, the laboratory will proceed with the turnaround time indicated on the Scheduling Notification form, note the issue in the SDG Narrative, and proceed with the analysis of the samples.

-Laboratory Problems-

Issue 2: The laboratory has relieved 16 soil samples and 2 water samples. They are scheduled for 16 soils and 6 waters, and the TR/COC lists the Case as not complete. The lab would like to know if they will be receiving any more soil samples.

Resolution 2: Per Region 3, the laboratory will be receiving more samples (2 soils and 1 water shipped today, 6/13). The laboratory will please note the issue in the SDG Narrative and proceed with the analysis of the samples. However, the Region thinks that only 15 soils were shipped yesterday, not 16. Can you please confirm?

-Discrepancies with tags, jars, and/or TR/COC- Issue 3: There are 3 sample containers for sample MC0013. The tag attached to one of the samples listed the sample as C0013 with BNA analysis and a tag number of 3129. The lab received containers with tag numbers 3132 and 3133, but no 3134.

Resolution 3: Per Region 3, sample MC0013 is a QC samples (which is triple volume, 3 containers). The container identified as C0013/tag 3129 for BNA analysis was incorrectly labeled. The correct label should have been MC0013/tag 3134, TM/CN. The laboratory will please note the issue in the Case/SDG narrative and proceed with the analysis of the samples.

Summary End

Please contact me if you have any further questions or problems.

Thank you,

Keri Schaffer
Environmental Coordinator
Computer Sciences Corporation
15000 Conference Center Drive
Chantilly, VA 20151

Phone: 703-818-4346

Email: kschaffer@fedcsc.com

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----Original Message----

From: Heather Napier [mailto:hnapier@triadeng.com]

Sent: Wednesday, June 13, 2007 2:17 PM

To: Harris.Carroll@epamail.epa.gov; Hargett.James@epamail.epa.gov; PDHayes@wvdep.org

Cc: Schaffer, Keri; R3_ESC-TSB@epamail.epa.gov

Subject: RE: NEW ISSUE | Case 36456 | Lab SENTIN | Issue Multiple

To All,

I offer the following responses to the issues for case 36456:

Issue 1 -

The schedule lists the TAT as 14-day, but the TR/COC has 21-day.

Response

The Scheduling Notification Form requested a 21-day TAT. The TR/COC also indicates a 21 day TAT. However, the Laboratory Assignment Notification that I received indicated 14-day TAT.

The 14 day TAT was not requested.

Issue 2 -

The laboratory has relieved 16 soil samples and 2 water samples. They are scheduled for 16 soils and 6 waters, and the TR/COC lists the Case as not complete. The lab would like to know if they will be receiving any more soil samples.

Response

Yes, the lab will be receiving more samples - they were shipped today. There are 2 soils and 1 water in that shipment. That will be the final shipment.

However, I do believe that only 15 soils were shipped yesterday (not 16). Please confirm.

Issue 3 -

There are 3 sample containers for sample MC0013. The tag attached to one of the samples listed the sample as C0013 with BNA analysis and a tag number of 3129. The lab received containers with tag numbers 3132 and 3133, but no 3134.

Response

Sample MC0013 is a laboratory QC sample (which is triple volume, i.e. 3 containers). The container identified as C0013/tag 3129, BNA analysis was incorrectly labeled. The container should have been labeled MC0013, tag 3134, TM/CN. My apologies for the error.

If you have anymore questions or if you need any additional information Please do not hesitate to contact me.

Thanks, Heather Napier .

----Original Message----

From: Harris.Carroll@epamail.epa.gov [mailto:Harris.Carroll@epamail.epa.gov]

Sent: Wednesday, June 13, 2007 1:24 PM

To: Hargett.James@epamail.epa.gov; HNapier@triadeng.com; PDHayes@wvdep.org

Cc: kschaffer@fedcsc.com; R3 ESC-TSB@epamail.epa.gov

Subject: Fw: NEW ISSUE | Case 36456 | Lab SENTIN | Issue Multiple

Dear Jim, Heather and Pam,

Please address the following issues I have received from the assigned laboratory via SMO. Please reply to all with your response as soon as possible.

-Laboratory Problems-

Issue 2: The laboratory has relieved 16 soil samples and 2 water samples. They are scheduled for 16 soils and 6 waters, and the TR/COC lists the Case as not complete. The lab would like to know if they will be receiving any more soil samples.

-Discrepancies with tags, jars, and/or TR/COC-Issue 3: There are 3 sample containers for sample MC0013.

The tag attached to one of the samples listed the sample as C0013 with

BNA analysis and a tag number of 3129. The lab received containers with ag numbers 3132 and 3133, but no 3134.

...Keri,

Please have the laboratory document the issues in the CASE SDG/NARRATIVE.

Thank you all, Carroll

Carroll Harris
NAHE, SEE
RSCC Coordinator, ASQAB
U.S. Environmental Protection Agency
Environmental Science Center
701 Mapes Road
Ft. Meade, MD 20755-5350
(410)305-2625
Fax(410)305-3093

---- Forwarded by Carroll Harris/ESC/R3/USEPA/US on 06/13/2007 01:11 PM

"Schaffer, Keri" <kschaffer@fedcs

c.com>

To

Carroll

06/13/2007 01:08 Harris/ESC/R3/USEPA/US@EPA, Dan

PM Slizys/ESC/R3/USEPA/US@EPA,

Khin-Cho

Thaung/ESC/R3/USEPA/US@EPA, John Kwedar/ESC/R3/USEPA/US@EPA

"Berardino, Michelle" <mberardino@fedcsc.com> Subject

NEW ISSUE | Case 36456 | Lab SENTIN | Issue Multiple

Carroll,

SENTIN is reporting the following issues regarding Case 36456. Issue 1 can be resolved using a standard answer, however please advise on how the Region wishes the lab to proceed for issues 2 and 3.

-Discrepancies with tags, jars, and/or TR/COC-

Issue 1: The TR/COC lists a TAT of 21 days, however per scheduling the TAT should be 14 days.

Resolution 1: In accordance with previous direction from Region 3, the laboratory will proceed with the turnaround time indicated on the Scheduling Notification form, note the issue in the SDG Narrative, and proceed with the analysis of the samples.

-Laboratory Problems-

Issue 2: The laboratory has relieved 16 soil samples and 2 water samples. They are scheduled for 16 soils and 6 waters, and the TR/COC lists the Case as not complete. The lab would like to know if they will be receiving any more soil samples.

-Discrepancies with tags, jars, and/or TR/COC-Issue 3: There are 3 sample containers for sample MC0013. The tag

attached to one of the samples listed the sample as C0013 with BNA analysis and a tag number of 3129. The lab received containers with tag numbers 3132 and 3133, but no 3134.

Please let me know if you have any more questions or problems.

Thank you,

Keri Schaffer
Environmental Coordinator
Computer Sciences Corporation
15000 Conference Center Drive
Chantilly, VA 20151

Phone: 703-818-4346

Email: kschaffer@fedcsc.com

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From: Berardino, Michelle

Sent: Wednesday, June 13, 2007 12:38 PM

To: Schaffer, Keri Subject: FW: Case 36456

From: Sample Receipt[SMTP:SAMPLE RECEIPT@SENTINELLAB.COM]

Sent: Wednesday, June 13, 2007 12:12:32 PM

To: Berardino, Michelle Subject: Case 36456 Auto forwarded by a Rule

Hi Michelle,

Here are a few issues for Case 36456:

- 1. The schedule lists the TAT as 14-day, but the TR/COC has 21-day.
- 2. We received 16 soil samples and 2 water samples. We are scheduled for 16 soils and 6 water samples. The shipment is marked as not complete on the TR/COC. Do you know if we have received all the soil samples for this Case since we received all 16 that we were scheduled for? I just don't want to release them and some more show up tomorrow or something.
- 3. There are 3 sample containers for sample MC0013. The tag attached to one of the samples listed the sample as C0013 with BNA analysis and a tag number of 3129. We received containers with tag numbers 3132 and 3133, but no 3134.

Thanks so much, Daphne



Daphne Woods

From:

"Schaffer, Keri" <kschaffer@fedcsc.com>

lo:

"Daphne Woods" <dwoods@sentinellab.com>

Cc:

<slizys.dan@epa.gov>; <Harris.Carroll@epamail.epa.gov>; <thaung.khin-cho@epa.gov>;

<kwedar.i

<kwedar.john@epa.gov>; "Berardino, Michelle" <mberardino@fedcsc.com>

Sent:

Friday, June 15, 2007 10:20 AM

Subject:

Region 03 | Case 36456 | Lab SENTIN | Issue Insufficient/inappropriate designation of laboratory QC | FINAL

Daphne,

Summary Start

Issue: There was not a water QC sample listed on the TR/COC. The lab would like to use sample MC0027 as the QC sample for SDG MC0027. Resolution: In accordance with previous direction from Region 3, the laboratory will select a sample for laboratory QC as long as the sample is not a PE, blank, or rinsate sample. The laboratory will note the issue in the Case/SDG Narrative, notify the SMO coordinator of the sample selected for laboratory QC, and proceed with the analysis of the samples.

Summary End

Please contact me if you have any further questions or problems.

Thank you,

Keri Schaffer
Environmental Coordinator
Computer Sciences Corporation
15000 Conference Center Drive
Chaptilly, VA 20151

Chantilly, VA 20151 Phone: 703-818-4346

Email: kschaffer@fedesc.com

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----Original Message-----

From: Daphne Woods [mailto:dwoods@sentinellab.com]

Sent: Friday, June 15, 2007 10:37 AM

To: Schaffer, Keri

Subject: Re: Region 03 | Case 36456 | Lab SENTIN | Issue Multiple |

FINAL

SO,

Hi. I have one more issue for this Case. There was not a water QC sample listed on the TR/COC, so the lab has chosen sample MC0027 as the QC sample for SDG MC0027.

Thanks, Daphne

Daphne Woods
Document Control Officer/Chemical Engineer
Sentinel, Inc.
(256) 534-9800 ext. 18

APPENDIX D LABORATORY CASE NARRATIVE

USEPA - CLP

COVER PAGE

Lab Name: Sentinel, Inc.

Contract: EPW06059

Lab	Code:	SENTIN	Case	No.:	36456	NRAS No.	. :	SDG No.	: MC0027
SOW	No.:	ILM05.4							
		EPA SAMPLI MC0004 MC0027 MC0027D MC0027S MC0028	E NO.				Lab Sa 3135 3135 3135 3135 3135	1 152 1MS	- -
	1								
						•			
									·
		 -							
		 ,							
						•		ICP-AES	ICP-MS
		AES and ICP-M ns applied?	S inte	erelen	ment		(Yes/No)	YES	
	e ICP-A lied?	AES and ICP-M	S bac	kgrour	nd correc	tions	(Yes/No)	YES	
		-were raw dat ation of back					(Yes/No)	МО	
Com	ments:		a İ						
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	<u> </u>								
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U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Na	me:	Sentinel,	Inc.	S	OW No.:	ILM05	. 4	Contract:	EPW0605	9
Lab Co	de:	SENTIN		Case No.	: <u>31,456</u>		NRAS No	.:	SDG No.:_	<u>mcoo27</u>
If a b Cooler	lani te	mperature (it, a n (s) rec	on-invasi orded via	ve laser laser m	measu easure	rement i	s taken us e: 5,6,4,5	. 2.0°C	ple. for samples:
										• • • • • • • • • • • • • • • • • • • •
Refer		KOC regard				or sam	Dies:			
Refer	to :	ROC regard	ling sa	mple pres	ervation	discr	epancies	for sampl	es:	
Refer	to	ROC regard	ling:	TRT dis analysis	crepancie discrepa	s on indes	TR/COC on TR/C	BC		
								<u>,</u>		
		ied: Yes_								
ANALYS	IS:	The foll	Lowing	analyte(s	B) were e	estimat	ed due t	o possible	matrix i	nterferences:
Initia	l A	CONTROL: ssessment: ssment:	·	ollowing i				d due to C	CS progra	m anomalies:
	<u> </u>				-					
OTHER:	an 2. va	omalies. Internal	Standa ne %RI	ard calcul (decimal	lations i form-not	in the	raw data centage)	with the	ted as th	e reciprocal
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				/ ,	DG NARRA	ATIVE -	. 1			ILM05.4

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc.

SOW No.: ILM05.4

Contract: EPW06059

Lab Code: SENTIN

Case No.: 36456

NRAS No.:

SDG No.: MCOO27

EQUATIONS:

HW1 Method: Concentration $(\mu g/L) = C \times (V_f/V_i) \times DF$

WHERE, $C = Instrument value in <math>\mu g/L$

 $V_{i} = Final digestion volume (mL)$

 $V_i = Initial digestion volume (mL)$

DF = Dilution Factor

HS1 Method: Concentration (dry wt.) $(mg/kg) = ((C \times V)/(W \times S)) \times DF$

WHERE, C = Concentration (mg/L)

V = Final sample volume in Liters (L)

W = Wet sample weight (kg)

S = % Solids/100

DF = Dilution Factor

CW1 Method: Concentration $(\mu g/L) = C \times (V_f/V_i) \times DF$

WHERE, $C = Instrument value in \mu g/L$ (The average of all replicate integrations).

 V_f = Final digestion volume (mL)

 V_i = Initial digestion volume (mL)

PF = Dilution Factor

CS1 Method: Concentration $(mg/kg) = (A \times D \times F) / (B \times E)$

WHERE, $A = Concentration in \mu g/L$

B = Weight in g

D = Dilution Factor

E = % Solids/100

F = Final Volume (0.100 L)

Signature:

Name & Title:

. Da

40 15 9

SDG NARRATIVE - 2

ILM05.4

ORIGINAL

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc.

SOW No.: ILM05.4

Contract: EPW06059

Lab Code: SENTIN

Case No.: 36456

NRAS No.:

SDG No.: MC0027

EQUATIONS:

DW2 Method: CN Concentration $(\mu g/L) = (A \times D \times F)/B$

WHERE, $A = \mu g/L$ CN of sample from regression analysis

B = volume of original sample for distillation (0.050 L)

D = any dilution factor necessary to bracket sample values within standard

values

F = sample receiving solution volume (0.050 L)

DS2 Method: CN Concentration $(mg/kg) = (A \times D \times F) / (B \times E)$

WHERE, $A = \mu g/L$ CN of sample from regression analysis

B = wet weight of original sample (g)

D = any dilution factor necessary to bracket sample values within standard

values

E = % solids/100

F = sample receiving solution volume (0.050 L)

HW2 Method: Concentration $(\mu g/L) = C \times (V_f/V_i) \times (V_f/20) \times DF$

WHERE, C_i = Instrument value in $\mu g/L$ (The average of all replicate integrations).

 V_f = Final digestion volume (50 mL)

V_i = Initial digestion volume (100 mL)

DF = Dilution Factor

HW3 Method: Concentration $(\mu g/L) = C \times (V_t/V_i) \times DF$

WHERE, $C = Instrument value in <math>\mu g/L$ (The average of all replicate integrations).

 $V_f = Final digestion volume (mL)$

 $V_i = Initial digestion volume (mL)$

DF = Dilution Factor

Signature:

Name & Title:

arofe

6/21/07

Date:

ILM05.4

Appendix2,

Inorganic Data Validation Report





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION III Environmental Sciences Center 701 Mapes Road Fort Meade, Maryland 20755-5350

DATE

June 29, 2007

SUBJECT:

Region III Data QA Review

FROM

Khin-Cho Thaung KCT

Region III ESAT RPO (3EA21)

TO

James Hargett

Regional Project Manager (3HS12)

inorganic

Attached is the organic data validation report for the Markay Chemicals Site (Case #: 36456; SDG#: MC0007) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2743.

Attachments

cc: Pamela Hayes (WVDEP) Lydia Work (Triad Eng.)

TO File #: 0007

TDF#: 0649

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Lockheed Martin Enterprise Solutions & Services ESAT Region 3
US EPA Environmental Science Center 701 Mapes Road Ft. Meade, MD 20755-5350 Telephone 410-305-3037 Facsimile 410-305-3597

LOCKHEED MARTIN We never forget who we're working for"

DATE:

June 27, 2007

SUBJECT:

Inorganic Data Validation (IM1 Level)

Case: 36456 SDG: MC0007

Site: Markay Chemicals

FROM:

Mirna Alpizar

Inorganic Data Reviewer

Mahboobeh Mecanic Management Senior Oversight Chemist

TO:

Khin-Cho Thaung

ESAT Region 3 Project Officer

OVERVIEW

Case 36456, Sample Delivery Group (SDG) MC0007, consisted of eighteen (18) soil samples analyzed for total metals and cyanide (CN) by Sentinel, Inc. (SENTIN). The sample set contained two (2) field duplicate pairs. Samples were analyzed in accordance with Contract Laboratory Program (CLP) Statement of Work (SOW) ILM05.4 through Routine Analytical Services (RAS) program.

SUMMARY

Data were validated according to EPA Region III Innovative Approaches (Level IM1) for Validation of Inorganic Data, June 1995, which includes review of all Forms but excludes the review of raw data. Areas of concern with respect to data usability are listed below.

The rinsate blanks associated with these samples were analyzed in SDG MC0027. Results for these field blanks were used to assess field contamination in this sample set. Rinsate blanks results are included in Appendix C.

Data in this case have been impacted by outliers present in the rinsate blank as well as the matrix spike and ICP serial dilution analyses. Details of these outliers are discussed under "Major and Minor Problems" and qualified analytical results for all samples are summarized on the Data Summary Forms (DSFs).

MAJOR PROBLEM

The matrix spike recovery was extremely low (<30%) for antimony (Sb). Low recoveries may be attributed to matrix interferences or analyte lost during the digestion process. Positive results for this analyte in affected samples may be biased extremely low. The "L" qualifier for this outlier has been superseded by "J" on the DSFs. Quantitation limits for this analyte in all samples have been rejected and qualified "R" on the DSFs.

MINOR PROBLEMS

Rinsate blank MC0027, analyzed in a SDG MC0027, had reported results greater than the Method Detection Limits (MDLs) for arsenic (As) and sodium (Na). Positive results for these analytes in affected samples which are less than or equal to five times ($\leq 5X$) the blank concentrations may be biased high and have been qualified "B" on the DSF.

ICP serial dilution percent differences (%Ds) were outside the control limits (>10%) for aluminum (Al), barium (Ba), chromium (Cr), iron (Fe), magnesium (Mg), manganese (Mn), nickel (Ni), potassium (K), vanadium (V), and zinc (Zn). Positive results for these analytes in all samples are estimated and have been qualified "J" on the DSFs.

The matrix spike recovery was high (>125%) for Mn. Positive results for this analyte in all samples may be biased high. The "K" qualifier for this outlier has been superseded by "J" on the DSFs.

NOTES

Reported results with values greater than the MDL but below Contract Required Quantitation Limit (CRQL) were qualified "J" on the DSFs.

Sample MC0015 was re-analyzed at a three-fold (3X) dilution for Ca in order to bring the concentration of this analyte within the linear range of the instrument. The result for this analyte in this sample was reported from the diluted analysis and annotated with a "+" on the DSF.

Sample MC0021 was reported with a percent solid less than fifty percent (<50%). The CRQL is elevated in this sample due to low percent solids.

Reported results for field duplicate pair MC0008/MC0012 were within 35% RPD, ±2XCRQL for all analytes except calcium (Ca). Reported results for field duplicate pair MC0022/MC0023 were within 35% RPD, ±2XCRQL for all analytes.

Data for Case 36456, SDG MC0007, were reviewed in accordance with EPA Region 3 Innovative Approaches (Level IM1) for Validation of Inorganic Data, June 1995.

ATTACHMENTS

INFORMATION REGARDING REPORT CONTENT

APPENDIX A GLOSSARY OF DATA QUALIFIER CODES DATA SUMMARY FORM(S)

APPENDIX C CHAIN OF CUSTODY RECORD(S)
APPENDIX D LABORATORY CASE NARRATIVE(S)

DCN: 36456 MC0007.IM1.doc

CO/C'Ala

APPENDIX A GLOSSARY OF DATA QUALIFIERS

ODICINIAL

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

CODES RELATED TO IDENTIFICATION

(confidence concerning presence or absence of analytes):

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

- B = Not detected substantially above the level reported in laboratory or field blanks.
- R = Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

CODES RELATED TO QUANTITATION

(can be used for both positive results and sample quantitation limits):

- J = Analyte Present. Reported value may not be accurate or precise.
- K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- UJ = Not detected, quantitation limit may be inaccurate or imprecise.
- UL = Not detected, quantitation limit is probably higher.

OTHER CODES

Q = No analytical result.

APPENDIX B

DATA SUMMARY FORMS (DSF)

DATA SUMMARY FORM: INORGANIC

Page __1__ of __4__

Case #: 36456

SDG: MC0007

MARKAY CHEMICALS

Number of Soil Samples: 18 Number of Water Samples: 0

Site : Lab. :

SENTIN

Sample Number :		MC0007		MC0008		MC0009		MC0010		MC0011	
Sampling Location :		SB1		SB2		SB3		SB4		SB5	
Field QC:				F. Dup MC0	0012						
Matrix:		Soil		Soil		Soil .	•	Soil		Soil	
Units:		mg/Kg	i	mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :		6/12/2007		6/12/2007		6/12/2007		6/12/2007		6/13/2007	
Time Sampled :		11:15		10:00		13:20		15:40		10:25	
%Solids:		79.3		78.6		79.0		78.9		77.0	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	20	7550	_	7000	J	6410	J	8690	J	8140	J
ANTIMONY	6.	ļ. 	A	1.1	J	21.1	J.	1.2	. J Ş	1.1	9
ARSENIC	1	5.1	В	4.0	В	5.6	В	6.1	В	5.8	В
BARIUM	20	-83.1	ું) `	69.8	J.	6 4 <i>.7</i>	J	105	3	85.8	J
BERYLLIUM .	0.5	1.0		0.88		1.0		1.1		0.98	
CADMIUM	0.5							0.22	J		
CALCIUM	500	379	j	1910		314	J	512	J	703	
CHROMIUM	1.1	11.2	. J	11.0	J	12.1	J	14.4	9	11.6	J
COBALT	5	9.6		10.3		10.9		10.3		13.1	
COPPER	2.5	18.7		18.7		18.4	วรม	19.2		18.2	2.3
IRON	10	25800	J	20900	J	25300	J	27300	J	26100	J
*LEAD	1	11.3		10.5		12.0		10.8		13,1	
MAGNESIUM	500	2360	J	2450	J	1900	J	2470	J	2510	J
MANGANESE	1.5	176	3	215	્યું	443	J	505	J	647	3
MERCURY	0.1	0.069	J	0.070	J			0.019	J	0.019	J
NICKEL	4	16.9	J	15.0	J (14.0	J.	16.7	J	17.2	J
POTASSIUM	500	831	J	840	J	787	J	996	J	860	J
SELENIUM	3.5	1.1	J			. 14	1				
SILVER	1	1.3		1.0	J	1.2	J	1.4	اسروسی	1.3	
SODIUM	500	437	8	408	Ð	425	В	473	В	482	В
THALLIUM	2.5	2.4	J	1.5	J	2.0	J	2.5	J	2.2	J
VANADIUM	5	16.9	J	15.3	J	16.1	J	18,2	J	17.1	1
ZINC	6	63.4	J	58.9	J	53.1	J	67.6	J	68.3	J
CYANIDE	2.5	5.5								139	10

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) / (%Solids/ 100)

DATA SUMMARY FORM: INORGANIC

ege __2__ of __4__

Case #: 36456

SDG : MC0007

Site:

MARKAY CHEMICALS

Lab.:

SENTIN

Sample Number :		MC0012		MC0013		MC0014		MC0015		MC0016	
Sampling Location :		SB6		SS1		SS2		SS3		SS4	
Field QC:		F. Dup MC0	8000								
Matrix:		Soil		Soil		Soil		Soil		Soil	
Units:		mg/Kg		mg/Kg		mg/Kg		ma/Ka		ma/Ka	
Date Sampled :		6/12/2007	1			6/12/2007		6/12/2007		6/12/2007	
Time Sampled :		10:00		6/12/2007 11:30		12:40		13:20		14:00	
%Solids:		78.7		88.1		84.1		72.1		90.6	
Dilution Factor :		1.0		1.0		1.0		1.0/3.0		1.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	20	7780	J	7960	1	8180	J	8170	J	9470	1
ANTIMONY	6		R	2.2	J	2.2	J	1,4	ل ا	1.0	J
ARSENIC	1	5.7	8	13.4		19.5		4.0	19	7,7	322
BARIUM	20	77.0	J	133	J	153	J	115	J	172	J
BERYLLIUM	0.5	1.0		0.96		0.88		0.35	J.	1.3	
CADMIUM	0.5	. *************************************		2.6		3.5	0.00	5.1	60000000000	1.4	Service
CALCIUM	500	5510		59600		10800	8382	248000+	e rationers Lie Keisse	41400	
CHROMIUM	1	12.3	J	342	J	89.4	J	295	J	265	J
COBALT	5	9,4		/11.2		14.5	700	3.3	4	8.8	
COPPER	2.5	21.2		58.3		39.3		22.7		47.3	***
IRON	10	25800	J	46400	J	36800		18700	3	26600	J
*LEAD	1	11.7		397		489		84.8	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	440	
MAGNESIUM	500	3000	J	37000	J	4610		16300	J	16400	
MANGANESE	1.5	192	J	673	j	643	J	243	J	758	J
MERGURY	0.1	0.032	J	0.27		0.16		0.15	37 22	0.15	
NICKEL	4	14.5	J	25.9	J	29.9	J	8.7	J	19.4	j
POTASSIUM	500	845	37	1070	J	1400	ာ္	828	1	961	
SELENIUM	3.5					1.2	J				
SILVER	1	1,2	J	4,2		2.6		9.5		1.5	300
SODIUM	500	454	В	2360	В	1660	В	664	В	1790	В
THALLIUM	2.5	2.1	J.	2.3	J	9.0				1.6	4
VANADIUM	5	17.2	J	20.3	j	21.6	J	8.2	J	14.4	J
ŹNC	- 6	60.8	ď	912	J	866	J	189	9	704	J
CYANIDE	2.5					0.27	J	0.26	J	0.55	J

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) / (%Solids/ 100)

+ = Reported from diluted analysis

00000

Case #: 36456

SDG: MC0007

Site:

MARKAY CHEMICALS

Lab.:

SENTIN

Sample Number :		MC0017		MC0018		MC0019	_	MC0020		MC0021	
Sampling Location :		SS5		SS6		SS7		SS8		SS9	
Matrix:		Soil		Soil		Soil		Soil		Soil	
Units:		mg/Kg		mg/Kg		mg/Kg	i	mg/Kg		mg/Kg	
Date Sampled :		6/12/2007		6/13/2007		6/12/2007		6/12/2007		6/12/2007	
Time Sampled :		15:00		08:45		09:45		10:10		09:30	
%Solids:		81.7		63.7		61.9		68.4		48.7	
Dilution Factor :		1.0		1.0		1.0	•	1.0		1.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	20	8990	J	7800	J	6670	J	9190	J	4580	J
ANTIMONY	6	1.2	3	2.6	J		A	2.8	J	2.2	· J
ARSENIC	1	5.4	В	10.6		23.6		10.5		8.2	В
BARKIM	20	241	J	343	J.	82.1	0	141		239	J
BERYLLIUM	0.5	1.0		1.0		1.2		0.93		0.38	J
CADMIUM	0.6	1,7		13.5		0.31	J.	1.5		0.87	J
CALCIUM	500	44500		32300		26100		22900		8010	
CHROMIUM	1	446	J	1970	J	59.7	7 .	39.7	្វ	242	J
COBALT	5	6.2		8.9		7.2	J	11.6		3.8	J
COPPER	2.5	54.7		1720		15.9		109		135	
IRON	10	25700	J	52800	J	11800	J	51800	J	20900	j
*LEAD		374		967		30.4		97.6		94.9	
MAGNESIUM	500	9570	J	6090	J	3160	J	6590	J	1120	J
MANGANESE	1.5	756	á	833	J (282	J	428	J	162	J
MERCURY	0.1	0.16		0.34		0.11	J	0.18		0.32	
NICKEL	4	19,8	J	24.5	J	14.8	J	31.0	.	9.7	
POTASSIUM	500	1140	J.	1100	J	1530	J	1560	j	2460	J
SELEMUM	3.5			2,8	, U		98.00 A.E.	1.8	4	2.5	3
SILVER	1	18.1	s arter i	4.4			n area i	2.9		1.5	j
SODIUM	500	1240	. 8	638Q	В	527	8	1340	8	804	8
THALLIUM	2.5	serra enginetors, el como	1227075080	3.9	J	C 200 (100 C ART 100 C C C C C C C C C C C C C C C C C C	la sum mi	4.4	Challes w	managasan kakasa sa ma	
VANADIUM	5	10.3	a	16.7	* 3.	13.1		18.1	4	17.3	J.
ZINC	6	389	J	2780	J	69.3	J	366	J	152	j
CYANIDE	2.5	0.44	J	1.0	4	0.58	J	0.32	J	0.43	

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) / (%Solids/ 100)

Page __4__ of __4__

DATA SUMMARY FORM: INORGANIC

Case #: 36456

SDG: MC0007

Site:

MARKAY CHEMICALS

Lab. :

SENTIN

Sample Number :		MC0022		MC0023		MC0025					
Sampling Location :		SS10		SS11		SS13		1			
Field QC:		F. Dup MC0	023	F. Dup MC0	0022						
Matrix:		Soil		Soil		Soil		!			
Units:		mg/Kg	•	mg/Kg		mg/Kg					
Date Sampled :		6/12/2007		6/12/2007		6/12/2007		J			
Time Sampled :		15:50		15:50		10:40					
%Solids:		90.5		89.2		84.5		·			
Dilution Factor :		1.0		1.0		1.0					
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	20	10800	J	9860	J	5910	a.				
ANTIMONY	6	1.1	J	V	R	1.2	J	screen day they set	Car Car as Co		
ARSENIC	9.	7,8		10.5		- 7.7	8				
BARIUM	20	153	J	122	J	142 .	J	r normana sa sa sa sa sa sa sa sa sa sa sa sa sa		- 112 11 4364011 841.109609	
BERYLLIUM	0.5	1.3		1,2		0.74	W. C. A				
CADMIUM	0.5	0.74		0.64		1.4	\$000,0000 W 500	es envelo orossoumno vascoom	0	sas introceren il malassa	
CALCIUM	500	30100		30400		65200					
CHROMIUM	1	29.8	J	27.8	J	24.3	J	icimo la tipola y describira			door on the c
COBALT	5	11.2		11.9		6.8					
COPPER	2.5	37.6	50600013133	32.9	Book tenteshki	51.8	oraneseus	báncomo o la mescá	Bustingerin	- 	000 12880 138
RON	10	19700	d	19700	J.	16800	J				
*LEAD	1 2004: 000-201	26.9		28.0	6-200-000	394	8 8744650		 	D 440 (20%A30.00)	A120000
MAGNESIUM	500	8150	J	4320	4	11700	J				
MANGANESE	1.5	466	J	602	ل 400000000000	512	J	2000 FOR THE STREET	SVINES.	883488188014,07888	B-8000. 8
MERCURY	0.1	278.8%	10053	0.050	J	0.071	J		17702		
NICKEL	4	27.2	ქ ლიგებ	27.8	J	15.4	J	9005233999-07333	Bri priig		
POTASSIUM	500	2330	(.)	2310		872	8. 4 .		18 2023		1320
SELENIUM	3.5	KYWZ 220000	ATT \$2.44		10000000		15-35-7	11.555.028848 11.555.028848	398782	 	k - 1,728
SILVER		0.76	330	0.79	9	0.90		K 364, 1949 .	18829 W		1 5×3/30
SODIUM	500	56 5	В	491	В	1740	B	Secretions.			100
THALLIUM	2,6	1,2	J.	1.3							Macari
VANADIUM	5 	19.3	J	18.5	J	13.7	J				1 00000
ZINC	6	130	4	113	T~~	276	3				1000
CYANIDE	2.5	0.42	<u> </u>	0.53	J	0.27	J	1	<u> </u>	L	

CRQL = Contract Required Quantitation Limit

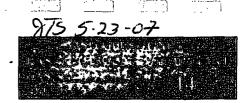
To calculate sample quantitation limits: (CRQL * Dilution Factor) / (%Solids/ 100)

SEE NARRATIVE FOR CODE DEFINITIONS

APPENDIX C

CHAIN-OF-CUSTODY RECORDS

U.S. EPA Region III Analytical Request Form Revision 10.06



36456

WYD054 116645

Date: 5/23/2007											
Site Name: Markay Cl	nemicals				Street Address: 302 Mac	Corkle Avenue					
City: St. Albans			State:	wv	Latitude: 38°23'39.39"		Longitude: 81°50'38.41				
Program: Superfund			Acct. #:	2007 T03 N302 DD20	A3JF QB00	CERCLIS #: WV	D054µ6645	_			
Site ID: A3JF			Spill ID:	:	Operable Unit: 00						
Site Specific QA Plan	Submitted:	No ⊠Y	es T	itle:		Date Approved:					
EPA Project Leader:	lames Hargett		Pho	ne#: 215-814-3305	Cell Phone #:		E-mail: Hargett.James@epamail.	epa.gov			
Request Preparer: He	ather Napier		Pho	ne#: 304-755-0721	Cell Phone #: 304-5	39-6120	E-mail: HNapier@triadeng.com				
Site Leader: Pamela F	layes		Pho	ne#: 304-926-0499	Cell Phone #:		E-mail: PDHayes@wvdep.org				
Contractor: Triad Engineering, Inc. EPA CO/PO				EPA CO/PO:							
#Samples 16	Matrix: soil			Parameter: TCL BN	A, TCL VOC	P .	Method: \$OM01.1	2637-7.78			
#Samples 16	Matrix: soil			Parameter: TAL me	tals, Hg, CN	leni	Method: ILM05.3 26382	26379.80			
#Samples 6	Samples 6 Matrix: water-non potable Parameter: TCL					>	Method: SOM01.1	26379.80			
#Samples 6	Matrix: water-non potable Parameter: TAL						Method: ILM05.3	26381			
#Samples	Matrix:			Parameter:			Method:				
#Samples	Matrix:			Parameter:							
#Samples	Matrix:			Parameter:			Method:				
#Samples	Matrix:			Parameter:			Method:				
#Samples	Matrix:			Parameter:	:		Method:				
Ship Date From: 6/12	/2007	Ship Dat	te To: 6/	14/2007	Org. Validation Level N	1 2	Inorg. Validation Level IM1				
Unvalidated Data Requ	uested: 🛛 No	☐ Yes	If Yes,	ΓAT Needed: 🔲 14day	ys 7days 72hrs	☐ 48hrs ☐ 24hr	s Other (Specify)				
Validated Data Packag	ge Due: 42 c	lays 🔲 30	days	🛛 21 days 🔲 14 days	Other (Specify)	14/7	2				
Electronic Data Delive	rables Required	: 🗌 No 🕻	⊠ Yes	(EDDs will be provide	ed in Region 3 EDD For	nat) /					
Special Instructions:					•						
·					•						
DODL (1 DD 10/0)											

FORM ARF- 10/06

Revision 1.1

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USEPA Contract Laboratory Program Inorganic Traffic Report & Chain of Custody Record

Case No:

DAS No:

36456

Region: Project Code:	3	Date Shipped: Carrier Name:	6/12/2007 FedEx	Chain of Custody Re	ecord	Sampler Signature:	
Account Code: CERCLIS ID: Spill ID:	2007 T 03W302DD2C A3JFQB00 WVD05416845	Airbiil: Shipped to:	862077056438 Sentinel Inc.	Relinquished By ALOGER FA	(Date / Time) 201 9:20	Received By	(Date / Time)
Site Neme/State: Project Leader:	Markay Chemicals/WV Heather A. Napier		116 Washington Street, NE Huntsville AL 35801	2			
Action: Sampling Co:	Other Triad Engineering, Inc.		(256) 534-9800	4			

INORGANIC SAMPLE No.	MATRIXI	CONC/ TYPE	ANALYBIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	STATION LOCATION	SAMPLE C DATE/		ORGANIC SAMPLE No.	QC Type
VC0007	Subsurface Soil (>12")/	L/G	TM/CN (21)	378 (1)	SB1	S: 6/12/2007	11:15	C0007	
10008	Shannon L. Cox Subsurface Soil (>12")/	Ĺ/G	TM/CN (21)	384 (1)	SB2	S: 6/12/2007	10:00	C0008	-
100009	Shannon L. Cox Subsurface Soil (>12")/	L/G	TM/CN (21)	390 (1)	. SB 3	S: 6/12/2007	13:20	C0009	
100010	Shannon L. Cox Subsurface Soil (>12")/	ĽG	TM/CN (21)	3104, 3106, 3106 (3)	984	S: 6/12/2007	15:40	C0010	
1C0012	Shannon L. Cox Subsurface Soil (>12")/	ĽĠ	TM/CN (21)	3118 (1)	SB8	S: 6/12/2007	10:00	C0012	Field Duplicate &
IC0013	Shannon L. Cox Soll/Sediment/ Jennifer L.	L/G	TM/CN (21)	3132, 3133, 3134 (3)	98 1	S: 6/12/2007	11:30	C0013	- ''
IC0014	Welch Soll/Sediment/ Jennifer L.	L/G	TM/CN (21)	3140 (1)	SS2	S: 6/12/2007	12:40	C0014	
100015	Weich Soil/Sediment/ Jennifer L.	L/G	TM/CN (21)	3146 (1)	\$\$3	S: 6/12/2007	13:20	C0015	
1C0016	Welch Soil/Sediment/ Jennifer L.	L/G	TM/CN (21)	3162 (1)	554	S: 6/12/2007	14:00	C0016	
AC0017	Welch Scil/Sediment/ Jennifer L. Welch	. r\a	TM/CN (21)	3158 (1)	SS 5	S: 6/12/2007	15:00	C0017	

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: MCOO/3, MCOO/O	Additional Sampler Signature(s): Leafur Nagier	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	on part of the contract of the	Shipment load?
CN = CLP TAL Cyanide	, TM = CLP TAL Total Metals, TM/CN = CLP TAL Total Meta	als and Cyanide	

TR Number: TR Number: 3-575621085-061207-0001
PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, 2000 Edmund Halley Dr., Reston, VA. 20191-3400 Phone 703/264-9348 Fax 703/264-9222

F2V51.045 Page 1 of 2

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USEPA Contract Laboratory Program Inorganic Traffic Report & Chain of Custody Record

Case No: DAS No:

36456

Region: Project Code:	3	Date Shipped: Carrier Name:	6/12/2007 FedEx		Chain of Custody Re	cord	Sampler Signature:	
Account Code:	2007 T 03W302DD2C A3JFQB00	Airbili:	862077056438	ĺ	Relinquished By	(Date / Time)	Received By	(Date / Time)
CERCLIS ID:	WANDOE ALGOAE	Shipped to:	Sentinel Inc.		leather	aper 3	V-07	
Spill ID:			116 Washington Street,	٦	_	y s		
Site Name/State:	Markay Chemicals/WV		NE		2.	, , , , , , , , , , , , , , , , , , ,		
Project Leader:	Heather A. Napler		Huntsville AL 35801 (256) 534-9800	1	3			
Action:	Other	ľ	(230) 307 8000	- 16				-
Sampling Co:	Triad Engineering, Inc.	. .			4			

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bolt/98	STATION LOCATION		COLLECT	ORGANIC SAMPLE No.	· QC Type
MC0019	Scil/Sediment/ Jennifer L. Weich	L/G	TM/CN (21)	3170 (1)	SS7	S: 6/12/2007	9:45	C0019	**
MC0020	Soll/Sediment/ Jennifer L. Welch	t/G	TM/CN (21)	3176 (1)	998	S: 6/12/2007	10:10	C0020	••
MC0021	Soll/Sediment/ Shannon L. Cox	L/G	TM/CN (21)	3182 (1)	939	S: 6/12/2007	9:30	C0021	·
MC0022	Soil/Sediment/ Jennifer L. Welch	L/G	TM/CN (21)	3188 (1)	SS10	S: 6/12/2007	15:50	C0022	
MC0023	Soil/Sediment/ Jennifer L. Welch	Γ⁄G	TM/CN (21)	3194 (1)	8511	S: 6/12/2007	15:50	C0023	Field Duplicate
MC0025	Soil/Sediment/ Jennifer L. Welch	· L/G	TM/CN (21)	3206 (1)	SS 13	S: 6/12/2007	10:40	C0025	- "
MC0027	Surface Water/ Heather A. Napier	L/G	CN (21), TM (21)	3218 (HNO3), 3229 (NaOH) (2)	SW2	S: 6/12/2007	14:30	C0027	Rinsate
MC0028	Surface Water/ Heather A. Napier	L/G	CN (21), TM (21)	3224 (HNO3), 3225 (NaOH) (2)	SW3	S: 6/12/2007	12:00	C0028	Rinsate

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC:	1,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Chain of Custody Seal Number:
	MC0013,MC0010	heather Mapier	
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment load?
CN = CLP TAL Cyanide	TM = CLP TAL TOTAL METALS, TWCN = CLP TAL TOTAL ME	tals and Cyanide	

TR Number: 3-575621085-061207-0001

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, 2000-Edmund Halley Dr., Reston, VA. 20191-3400 Prione 703/264-9348 Fax 703/264-9222

	EPA
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USEPA Contract Laboratory Program Inorganic Traffic Report & Chain of Custody Record

Case No: 36456 DAS No:

						L		
	Region: Project Code:	3	Date Shipped:		Chain of Custody Re	cord	Sampler Signature:	
١	Account Code:	2007 T 03W302DD2C A3JFQB00	Airmii: 862077056508	Relinquished By	(Date / Time)	Received By	(Date / Time)	
	CERCLIS ID:	WVD05416645		the other?	100ie	820		
ı	Spill ID:	•	4	116 Washington Street,				
İ	Site Name/State:	Markey Chemicals/WV	1	NE Huntaviile AL 35801 (258) 534-9800	2			
l	Project Leader:	Heather A. Napler	į.		3		1	
1	Action:	Other	(250) 554-5000		·			
۱	Sampling Co:	Triad Engineering, Inc.			4			
•	INCEGANIC	MATRIX/ CONC/ ANALYSIS/	TAG	No.J STATION	SAMPLE CO	LLECT OR	GANIC	QC .

INORGANIC SAMPLE N	C MATRIX/	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No.J PREBERVATIVE/ Bottles	STATION LOCATION		COLLECT E/TIME	ORGANIC SAMPLE No.	QC Type
MC0004	Ground Water/ Shannon L. Cox	L/G	CN (21), TM (21)	351 (HNO3), 354 (NaOH) (2)	GW4	S: 6/13/2007	9:00	C0004	**
MC0011	Subsurface Soil (>12")/ Shannon L. Cox	L/G	TM/CN (21)	3112 (1)	SB 5	S: 6/13/2007	10:25	C0011	
MC0018	Soll/Sediment/ Jennifer L. Welch	L/G	TM/CN (21)	3164 (1)	8S6	S: 6/13/2007	8:45	C0018	

Shipment for Case	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Complete? Y		1 headly Dogos	
		Maximy ruper	
Anaiyeis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment iced?
CN = CLP TAL Cyanide	, TM = CLP TAL TOtal Metals, TM/CN = CLP TAL Total Mate	als and Cyanide	



Daphne Woods

From:

"Schaffer, Keri" <kschaffer@fedcsc.com>

To:

"Daphne Wood" <dwoods@sentinellab.com>

Cc

<slizys.dan@epa.gov>; <Harris.Carroll@epamail.epa.gov>; <thaung.khin-cho@epa.gov>;

<kwedar.john@epa.gov>

Sent:

Wednesday, June 13, 2007 1:45 PM

Subject:

Region 03 | Case 36456 | Lab SENTIN | Issue Documentation | FINAL

Daphne,

Summary Start

-Discrepancies with tags, jars, and/or TR/COC -

Issue 1: The TR/COC lists the analysis as TM/CN, however, per scheduling, the analysis should be TM/Hg/CN.

Resolution 1: In accordance with previous direction from Region 3, the laboratory will note the issue in the Case/SDG Narrative, perform the analyses as indicated on the Scheduling Notification Form, and proceed with the analysis of the samples.

- Insufficient/inappropriate designation of laboratory QC -

Issue 2: There are 2 soil samples listed for QC. The laboratory only needs 1 sample for QC. The laboratory will use sample MC0010 and disregard MC0013.

Resolution 2: In accordance with previous direction from Region 3, the laboratory will select on of the designated samples per matrix for laboratory QC. The laboratory will note the issue in the Case/SDG Narrative, notify the SMO coordinator of the sample selected for laboratory QC, and proceed with the analysis of the samples.

Summary End

Please contact me if you have any further questions or problems.

Thank you,

Keri Schaffer Environmental Coordinator Computer Sciences Corporation 15000 Conference Center Drive Chantilly, VA 20151 Phone: 703-818-4346

Email: kschaffer@fedcsc.com

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6/13 2:36pm

Conversation between Keri Schaffer, SMO, and Daphne Woods, SENTIN. SMO asked the laboratory which sample they will be disregarding for QC. The laboratory said they will be disregarding sample MC0013 for QC.

From: Berardino, Michelle

Sent: Wednesday, June 13, 2007 2:29 PM

To: Schaffer, Keri

Subject: FW: Case 36456

From: Sample Receipt[SMTP:SAMPLE RECEIPT@SENTINELLAB.COM]

Sent: Wednesday, June 13, 2007 2:02:43 PM

To: Berardino, Michelle Subject: Fw: Case 36456 Auto forwarded by a Rule

Hi again,

~ ~ ~



Here are a couple of more issues for this case:

- 4. The analysis is listed as TM/CN on the TR/COC, but the schedule lists TM/Hg/CN.
- 5. There are 2 soil QC samples listed. Assuming no more samples are coming in, then we will only need one QC sample. We will used MC0010.

Please let me know something as soon as possible about these issues.

Thanks, Daphne

---- Original Message ----From: Sample Receipt To: Michelle Berardino

Sent: Wednesday, June 13, 2007 11:12 AM

Subject: Case 36456

Hi Michelle.

Here are a few issues for Case 36456:

- 1. The schedule lists the TAT as 14-day, but the TR/COC has 21-day.
- 2. We received 16 soil samples and 2 water samples. We are scheduled for 16 soils and 6 water samples. The shipment is marked as not complete on the TR/COC. Do you know if we have received all the soil samples for this Case since we received all 16 that we were scheduled for? I just don't want to release them and some more show up tomorrow or something.
- 3. There are 3 sample containers for sample MC0013. The tag attached to one of the samples listed the sample as C0013 with BNA analysis and a tag number of 3129. We received containers with tag numbers 3132 and 3133, but no 3134.

Thanks so much, Daphne

200



Daphne Woods

From:

"Schaffer, Keri" <kschaffer@fedcsc.com>

To:

"Daphne Woods" <dwoods@sentinellab.com>

Sent:

Thursday, June 14, 2007 12:30 PM

Subject:

Region 03 | Case 36456 | Lab SENTIN | Issue Multiple | FINAL

Daphne,

Summary Start

-Discrepancies with tags, jars, and/or TR/COC- Issue 1: The TR/COC lists a TAT of 21 days, however per scheduling the TAT should be 14 days.

Resolution 1: In accordance with previous direction from Region 3, the laboratory will proceed with the turnaround time indicated on the Scheduling Notification form, note the issue in the SDG Narrative, and proceed with the analysis of the samples.

-Laboratory Problems-

Issue 2: The laboratory has relieved 16 soil samples and 2 water samples. They are scheduled for 16 soils and 6 waters, and the TR/COC lists the Case as not complete. The lab would like to know if they will be receiving any more soil samples.

Resolution 2: Per Region 3, the laboratory will be receiving more samples (2 soils and 1 water shipped today, 6/13). The laboratory will please note the issue in the SDG Narrative and proceed with the analysis of the samples. However, the Region thinks that only 15 soils were shipped yesterday, not 16. Can you please confirm?

-Discrepancies with tags, jars, and/or TR/COC- Issue 3: There are 3 sample containers for sample MC0013. The tag attached to one of the samples listed the sample as C0013 with BNA analysis and a tag number of 3129. The lab received containers with tag numbers 3132 and 3133, but no 3134.

Resolution 3: Per Region 3, sample MC0013 is a QC samples (which is triple volume, 3 containers). The container identified as C0013/tag 3129 for BNA analysis was incorrectly labeled. The correct label should have been MC0013/tag 3134, TM/CN. The laboratory will please note the issue in the Case/SDG narrative and proceed with the analysis of the samples.

Summary End

Please contact me if you have any further questions or problems.

Thank you,

Keri Schaffer
Environmental Coordinator
Computer Sciences Corporation
15000 Conference Center Drive
Chantilly, VA 20151

Phone: 703-818-4346

Email: kschaffer@fedcsc.com

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---Original Message----

From: Heather Napier [mailto:hnapier@triadeng.com]

Sent: Wednesday, June 13, 2007 2:17 PM

To: Harris.Carroll@epamail.epa.gov; Hargett.James@epamail.epa.gov; PDHayes@wvdep.org

Cc: Schaffer, Keri; R3 ESC-TSB@epamail.epa.gov

Subject: RE: NEW ISSUE | Case 36456 | Lab SENTIN | Issue Multiple

To All,

I offer the following responses to the issues for case 36456:

Issue 1 -

The schedule lists the TAT as 14-day, but the TR/COC has 21-day.

250

Response

The Scheduling Notification Form requested a 21-day TAT. The TR/COC also indicates a 21 day TAT. However, the Laboratory Assignment Notification that I received indicated 14-day TAT.

The 14 day TAT was not requested.

Issue 2 -

The laboratory has relieved 16 soil samples and 2 water samples. They are scheduled for 16 soils and 6 waters, and the TR/COC lists the Case as not complete. The lab would like to know if they will be receiving any more soil samples.

Response

Yes, the lab will be receiving more samples - they were shipped today. There are 2 soils and 1 water in that shipment. That will be the final shipment.

However, I do believe that only 15 soils were shipped yesterday (not 16). Please confirm.

Issue 3 -

There are 3 sample containers for sample MC0013. The tag attached to one of the samples listed the sample as C0013 with BNA analysis and a tag number of 3129. The lab received containers with tag numbers 3132 and 3133, but no 3134.

Response

Sample MC0013 is a laboratory QC sample (which is triple volume, i.e. 3 containers). The container identified as C0013/tag 3129, BNA analysis was incorrectly labeled. The container should have been labeled MC0013, tag 3134, TM/CN. My apologies for the error.

If you have anymore questions or if you need any additional information Please do not hesitate to contact me.

Thanks, Heather Napier

----Original Message----

From: Harris.Carroll@epamail.epa.gov [mailto:Harris.Carroll@epamail.epa.gov]

Sent: Wednesday, June 13, 2007 1:24 PM

To: Hargett.James@epamail.epa.gov; HNapier@triadeng.com; PDHayes@wvdep.org Cc: kschaffer@fedcsc.com; R3 ESC-TSB@epamail.epa.gov

Subject: Fw: NEW ISSUE | Case 36456 | Lab SENTIN | Issue Multiple

Dear Jim, Heather and Pam,

Please address the following issues I have received from the assigned laboratory via SMO. Please reply to all with your response as soon as possible.

-Laboratory Problems-

Issue 2: The laboratory has relieved 16 soil samples and 2 water samples. They are scheduled for 16 soils and 6 waters, and the TR/COC lists the Case as not complete. The lab would like to know if they will be receiving any more soil samples.

-Discrepancies with tags, jars, and/or TR/COC-Issue 3: There are 3 sample containers for sample MC0013.

The tag attached to one of the samples listed the sample as C0013 with

Na

BNA analysis and a tag number of 3129. The lab received containers with tag numbers 3132 and 3133, but no 3134.

Keri,

Please have the laboratory document the issues in the CASE SDG/NARRATIVE.

Thank you all. Carroll

Carroll Harris NAHE, SEE RSCC Coordinator, ASQAB U.S. Environmental Protection Agency **Environmental Science Center** 701 Mapes Road Ft. Meade, MD 20755-5350 (410)305-2625 Fax(410)305-3093

--- Forwarded by Carroll Harris/ESC/R3/USEPA/US on 06/13/2007 01:11 PM

"Schaffer, Keri" <kschaffer@fedcs</pre>

c.com>

To

Carroll

06/13/2007 01:08 Harris/ESC/R3/USEPA/US@EPA, Dan

PM Slizys/ESC/R3/USEPA/US@EPA,

Khin-Cho

Thaung/ESC/R3/USEPA/US@EPA, John

Kwedar/ESC/R3/USEPA/US@EPA

"Berardino, Michelle" <mberardino@fedcsc.com>

Subject

NEW ISSUE | Case 36456 | Lab

SENTIN | Issue Multiple

Carroll,

SENTIN is reporting the following issues regarding Case 36456. Issue 1 can be resolved using a standard answer, however please advise on how the Region wishes the lab to proceed for issues 2 and 3.

-Discrepancies with tags, jars, and/or TR/COC-

Issue 1: The TR/COC lists a TAT of 21 days, however per scheduling the

TAT should be 14 days.

Resolution 1: In accordance with previous direction from Region 3, the laboratory will proceed with the turnaround time indicated on the Scheduling Notification form, note the issue in the SDG Narrative, and proceed with the analysis of the samples.

-Laboratory Problems-

Issue 2: The laboratory has relieved 16 soil samples and 2 water samples. They are scheduled for 16 soils and 6 waters, and the TR/COC lists the Case as not complete. The lab would like to know if they will be receiving any more soil samples.

-Discrepancies with tags, jars, and/or TR/COC-

Issue 3: There are 3 sample containers for sample MC0013. The tag

attached to one of the samples listed the sample as C0013 with BNA analysis and a tag number of 3129. The lab received containers with tag numbers 3132 and 3133, but no 3134.

Please let me know if you have any more questions or problems.

Thank you,

Keri Schaffer
Environmental Coordinator
Computer Sciences Corporation
15000 Conference Center Drive
Chantilly, VA 20151

Phone: 703-818-4346

Email: kschaffer@fedcsc.com

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From: Berardino, Michelle

Sent: Wednesday, June 13, 2007 12:38 PM

To: Schaffer, Keri

Subject: FW: Case 36456

From: Sample Receipt[SMTP:SAMPLE_RECEIPT@SENTINELLAB.COM]
Sent: Wednesday, June 13, 2007 12:12:32 PM
To: Berardino, Michelle
Subject: Case 36456
Auto forwarded by a Rule

Hi Michelle,

Here are a few issues for Case 36456:

- 1. The schedule lists the TAT as 14-day, but the TR/COC has 21-day.
- 2. We received 16 soil samples and 2 water samples. We are scheduled for 16 soils and 6 water samples. The shipment is marked as not complete on the TR/COC. Do you know if we have received all the soil samples for this Case since we received all 16 that we were scheduled for? I just don't want to release them and some more show up tomorrow or something.
- 3. There are 3 sample containers for sample MC0013. The tag attached to one of the samples listed the sample as C0013 with BNA analysis and a tag number of 3129. We received containers with tag numbers 3132 and 3133, but no 3134.

Thanks so much, Daphne

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USEPA - CLP

1A-IN INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0027

Lab Name: Sentinel, Inc.

Contract: EPW06059

Lab Code: SENTIN Case No.: 36456 NRAS No.:

SDG No.: MC0027

Matrix: (soil/water) WATER

Lab Sample ID: 31351

Level: (low/med) LOW

Date Received: 06/13/2007

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	М
7429-90-5	Aluminum	147	J		P
7440-36-0	Antimony	60.0	ט		P
7440-38-2	Arsenic	13.4 /			P
7440-39-3	Barium	200	ט		P
7440-41-7	Beryllium	5.0	ט		₽
7440-43-9	Cadmium	5.0	ע		P
7440-70-2	Calcium	253	J		P
7440-47-3	Chromium	1.1	J		P
7440-48-4	Cobalt	50.0	ן ט		P
7440-50-8	Copper	25.0	ן ש		P
7439-89-6	Iron	23.2	J		P
7439-92-1	Lead	10.0	ע		P
7439-95-4	Magnesium	5000	ע		P
7439-96-5	Manganese	1.3	J	1	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	40.0	ָ ע		P
7440-09-7	Potassium	467	J		P
7782-49-2	Selenium	35.0	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	716000		D	P
7440-28-0	Thallium	25.0	U		P
7440-62-2	Vanadium	50.0	U	•	P
7440-66-6	Zinc	60.0	ע		P
57-12-5	Cyanide	10.0	ט		AS
		<u> </u>	 		

Color Before:	COLORLESS	Clarity	Before:	CLEAR	Texture:
Color After:	COLORLESS	Clarity	After:	CLEAR	Artifacts:
Comments:					

USEPA - CLP

1A-IN INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0028

Lab Name: Sentinel, Inc.

Contract: EPW06059

Lab Code: SENTIN Case No.: 36456 NRAS No.:

SDG No.: MC0027

Matrix: (soil/water) WATER

Lab Sample ID: 31352

Level: (low/med) LOW

Date Received: 06/13/2007

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Pingulank Blank

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	86.6	J		P
7440-36-0	Antimony	60.0	ן ט ן		P
7440-38-2	Arsenic	11.6			į P
7440-39-3	Barium	200	ן ט ן		Į P
7440-41-7	Beryllium	5.0	ן ט ן		P
7440-43-9	Cadmium	5.0	ן ט		P
7440-70-2	Calcium	279	J		P
7440-47-3	Chromium	10.0	ן ט ן	7"	P
7440-48-4	Cobalt	50.0	ן ט	···	P
7440-50-8	Copper	25.0	ן ט		P
7439-89-6	Iron	100	ן ט		P
7439-92-1	Lead	10.0	ן ט		P
7439-95-4	Magnesium	5000	ן ט		P
7439-96-5	Manganese	15.0	ן ט		P
7439-97-6	Mercury	0.20	ן ט		C
7440-02-0	Nickel	40.0	ן טן		P
	Potassium	321	J		P
7782-49-2	•	35.0	ן ט ן		P
7440-22-4	,	10.0	ן ט		P
7440-23-5		1920	J		P
7440-28-0		25.0	ן ט ן		P
7440-62-2	Vanadium	50.0	ן ט ן	,	P
7440-66-6	Zinc	60.0	ו ס ו		P
57-12-5	Cyanide	10.0	ו טו	•	İΑ

Color	Before:	COLORLESS	Clarity	Before:	CLEAR		Texture:	
Color	After:	COLORLESS	Clarity	After:	CLEAR		Artifacts	5 :
Comme	nts:					e		

APPENDIX D LABORATORY CASE NARRATIVE

ILM05.4

USEPA - CLP

COVER PAGE

Contract: EPW06059

Lab Name: Sentinel, Inc.

Lab Code: SEN	TIN	Case No	.: 36456	NRAS N	o.:	SDG No.	: MC0007
SOW No.: ILM	05.4						
_	EPA SAMPLE MC0007 MC0008 MC0009 MC0010 MC0010D MC0010S MC0011 MC0012 MC0013 MC0014 MC0015 MC0016 MC0017 MC0018 MC0019 MC0020 MC0021 MC0023 MC0023 MC0025	E NO.		· ·	Lab Sa 3133 3133 3133 3133 3134 3134 3134 313	6 7 8 8S2 8MS 3 9 0 1 2 3 4 4 5 6 7 8 9	
•							
						ICP-AES	ICP-MS
Were ICP-AES corrections a		S intere	lement		(Yes/No)	YES	
Were ICP-AES applied?	and ICP-M	S backgr	ound corre	ctions	(Yes/No)	YES	
If yes-wer applicatio					(Yes/No)	NO	
Comments:	•						,
		·					
					,·		
I certify the conditions of than the conditions of than the conditions of than the conditions of than the conditions of	the cont litions de a package lternate m s b <u>e</u> en a <u>u</u> t	ract, bo tailed a and in t eans of horized	th technic bove. Rel he compute electronic by the Lab ollowing s	ally and ease of r-readab transmi	d for compl the data of the data su ission, if Manager or	eteness, contained bmitted o approved	for other in this n diskette in advance

COVER PAGE

Contract: EPW06059

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc. SOW No.: ILM05.4

Lab Code: SENTIN Case No.: 36456 NRAS No.: SDG No.: MC0007
SAMPLE RECEIPT: Temperature Blank: PRESENT / ABSENT If a blank is absent, a non-invasive laser measurement is taken using a sample. Cooler temperature(s) recorded via laser measurement were: 5.0,4.5,3.0°C Refer to Record of Communication (ROC) regarding EPA Sample # discrepancies for samples:
Refer to ROC regarding tag discrepancies for samples: MCGOI3
Refer to ROC regarding sample preservation discrepancies for samples:
Refer to ROC regarding: onalysis discrepancies on TR/COC 'AC selection TRY discrepancies on TR/COC
QC Specified: Yes \(\sigma \) No If no, chose: ANALYSIS: The following analyte(s) were estimated due to possible matrix interferences: Al, Ba, Cr, Fe, Mg, Mn, Ni, K, Y, +Zn
DOCUMENT CONTROL: The following invalid defects resulted due to CCS program anomalies: Initial Assessment: Full Assessment:
OTHER: 1. ICP-MS Mean Values in the raw data are incorrect due to TJA software anomalies. 2. Internal Standard calculations in the raw data are reported as the reciprocal values of the %RI (decimal form-not a percentage) with the control limits as stated in the SOW Exhibit D (ICP-MS) Section 12.11.1.
Signature: Name & Title: Date: Date:

ILM05.4

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc.

SOW No.: ILM05.4

Contract: EPW06059

Lab Code: SENTIN

Case No.: 364516

NRAS No.:

SDG No.: MC0007

EQUATIONS:

HW1 Method: Concentration $(\mu g/L) = C \times (V_f/V_i) \times DF$

WHERE, $C = Instrument value in <math>\mu g/L$

V_f = Final digestion volume (mL)
V_i = Initial digestion volume (mL)

DF = Dilution Factor

HS1 Method: Concentration (dry wt.) $(mg/kg) = ((C \times V)/(W \times S)) \times DF$

WHERE, C = Concentration (mg/L)

V = Final sample volume in Liters (L)

W = Wet sample weight (kg)

S = % Solids/100

DF = Dilution Factor

CW1 Method: Concentration $(\mu g/L) = C \times (V_f/V_i) \times DF$

WHERE, $C = Instrument value in <math>\mu g/L$ (The average of all replicate integrations).

 $V_f = Final digestion volume (mL)$

 V_i = Initial digestion volume (mL)

DF = Dilution Factor

CS1 Method: Concentration $(mg/kg) = (A \times D \times F) / (B \times E)$

WHERE, A = Concentration in $\mu g/L$

B = Weight in g

D = Dilution Factor

E = % Solids/100

F = Final Volume (0.100 L)

Signature:

Name & Title:

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SDG NARRATIVE - 2

Date: 4/20/07

ILM05.4

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc.

SOW No.: ILM05.4

Contract: EPW06059

Lab Code: SENTIN

Case No.: 36456

NRAS No.:

SDG No.: MC0007

EQUATIONS:

DW2 Method: CN Concentration $(\mu g/L) = (A \times D \times F)/B$

WHERE, $A = \mu g/L$ CN of sample from regression analysis

B = volume of original sample for distillation (0.050 L)

D = any dilution factor necessary to bracket sample values within standard

values

F = sample receiving solution volume (0.050 L)

DS2 Method: CN Concentration $(mg/kg) = (A \times D \times F) / (B \times E)$

WHERE, $A = \mu g/L$ CN of sample from regression analysis

B = wet weight of original sample (g)

D = any dilution factor necessary to bracket sample values within standard

values

E = % solids/100

F = sample receiving solution volume (0.050 L)

HW2 Method: Concentration $(\mu g/L) = C \times (V_f/V_i) \times (V_f/20) \times DF$

WHERE, $C_i = Instrument value in \mu g/L$ (The average of all replicate integrations).

 $V_f = Final digestion volume (50 mL)$

V_i = Initial digestion volume (100 mL)

DF = Dilution Factor

HW3 Method: Concentration $(\mu g/L) = C \times (V_f/V_i) \times DF$

WHERE, $C = Instrument value in \mu g/L$ (The average of all replicate integrations).

V_f = Final digestion volume (mL)

V_i = Initial digestion volume (mL)

DF = Dilution Factor

Signature:

Name & Title:

arch

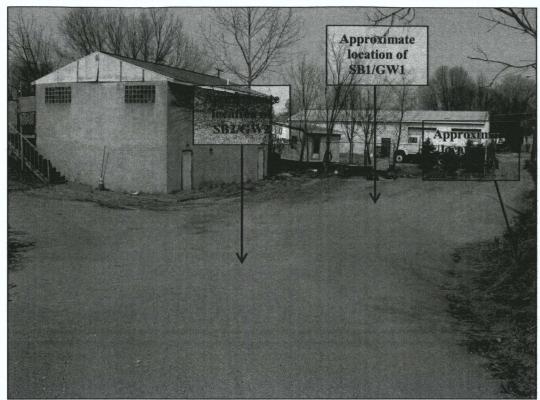
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SDG NARRATIVE - 3

ILM05.4

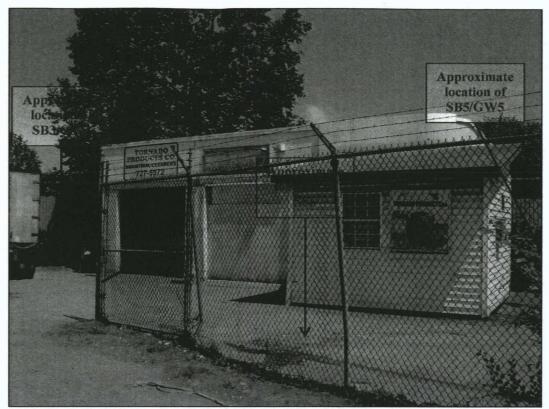
Appendix 3,
Site Photographs



Photograph 1. Facing northwest toward the approximate locations of soil borings SB1 and SB2, groundwater samples GW1 and GW2, and surface soil samples SS10 and SS11.



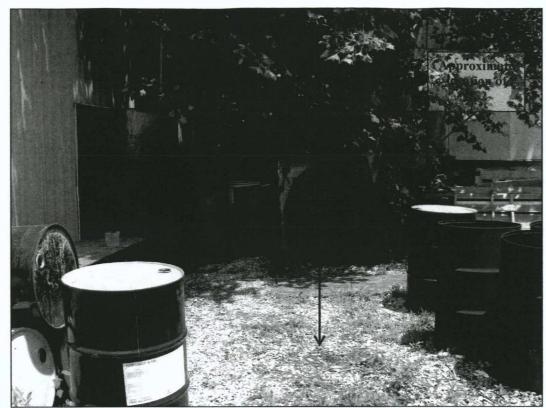
Photograph 2. Facing northeast toward surface soil samples SS10 and SS11, located on the western side of the facility building.



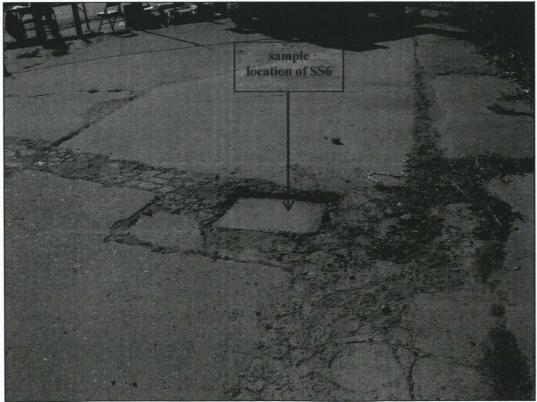
Photograph 3. Facing north toward subsurface soil sample locations SB3 and SB5, groundwater sample locations GW3 and GW5, and surface soil sample SS6.



Photograph 4. Facing west toward surface soil samples SS4 and SS5, subsurface soil sample SB3, and groundwater sample GW3.



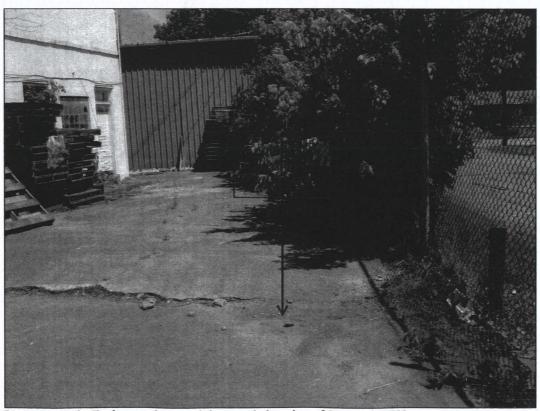
Photograph 5. Facing east toward surface soil sample locations SS2 and SS3.



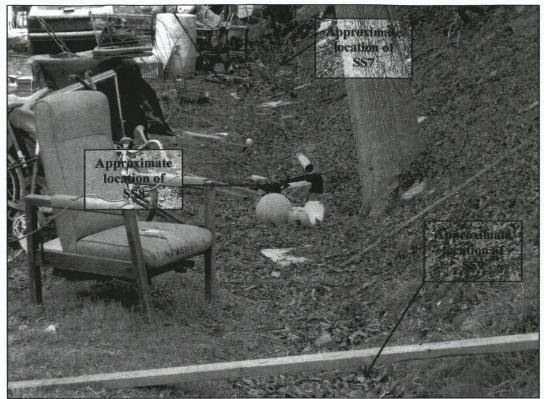
Photograph 6. Facing east toward valve box and the location of soil sample SS6.



Photograph 7. Facing south toward the location of subsurface soil sample SB4 and groundwater sample GW4 in the approximate location of the former UST pit.



Photograph 8. Facing north toward the sample location of SB5 and GW5.



Photograph 9. Facing east along residential property located north of the Site toward surface soil sample locations of SS7, SS8 and SS9.



Photograph 10. Facing south toward the location of surface soil sample SS8 located on the residential property north of the Site.